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The White House asks agencies for updates on their smart ID card plans. **PAGE 10**

THE 'VERSATILIST' MYTH
Marcus Courtney rebuts the argument that tech specialists are an endangered species. **PAGE 20**

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SEPTEMBER 4, 2006 ▪ VOL. 40 ▪ NO. 36 ▪ $5/COPY

IN DEPTH: BUSINESS INTELLIGENCE

Spreadsheets Seen As Security Hole

Companies moving to protect data in Excel and other BI tools

BY HEATHER HAVENSTEIN

In the wake of multiple high-profile laptop thefts and data breaches, some IT shops are launching initiatives to ensure that sensitive corporate data stored in spreadsheets and business intelligence tools remains secure.

The security efforts are taking on greater urgency as more and more workers gain access to BI tools and spreadsheets used for data analysis functions.

Several recent breaches have involved unsecured spreadsheets — including an inadvertent e-mail exposure of sensitive data on about 5,000 customers that Verizon Wireless disclosed last week, and the theft in May of a laptop from the U.S. Department of Veterans Affairs that contained personal information on some 26 million people.

IT managers and analysts said that spreadsheets are the most common method used to analyze corporate data and are increasingly being used as a front end to more advanced BI systems. However, in most cases the ubiquitous application and the more traditional BI tools have not yet received the same security scrutiny as transactional systems and Web applications have, they said.

Mayur Raichura, director of information services at The Long & Foster Cos., met last week with various executives, including the company's chief financial officer and controller, to kick off an IT security ini-

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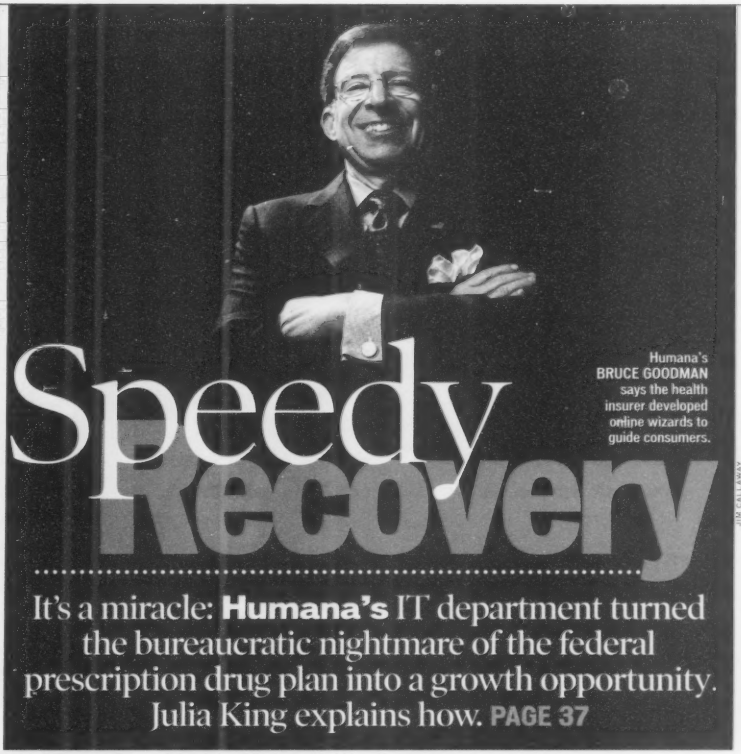
INSIDE

Software vendors aim to meet user demands for improved security. PAGE 12

Q&A: Del Monte's Alec DeSimone talks about limiting user access to BI tools and spreadsheets. PAGE 14



Speedy Recovery

Humana's **BRUCE GOODMAN** says the health insurer developed online wizards to guide consumers.

JIM CALLAWAY

It's a miracle: **Humana's** IT department turned the bureaucratic nightmare of the federal prescription drug plan into a growth opportunity. Julia King explains how. **PAGE 37**

IT Execs Fight Fatigue, Labor Shortages

Operations in New Orleans still far from normal, they say

BY PATRICK THIBODEAU
NEW ORLEANS

In the year since Hurricane Katrina caused unprecedented devastation, IT managers here have done much to shore up their systems and try to ensure that their organizations can continue to operate, no matter what roars out of the Gulf of Mexico.

KATRINA: ONE YEAR LATER

Many have added redundant voice and data lines or satellite communications systems and replaced tape archiving with electronic data backup. Power-generation capabilities have been improved inside data centers, and some companies have dug wells to guarantee that they have reliable water supplies. New contracts have been signed with disaster recovery providers.

But dealing with Katrina's aftermath has exacted a financial and emotional price on many of the people who have reassembled their IT operations while trying to put their personal lives back in order.

"The hardest part of this is fatigue," said Kevin Bassett, who manages IT at Morris

Katrina, page 6

NEWSPAPER

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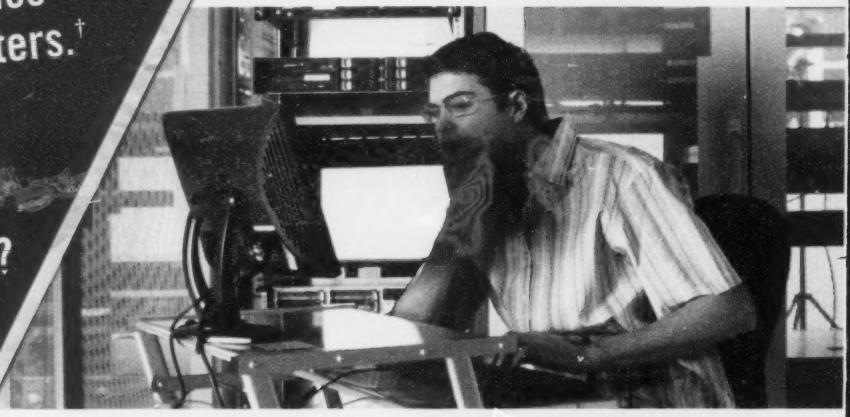

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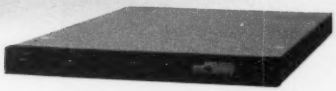

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†Storage Magazine, February 2005.

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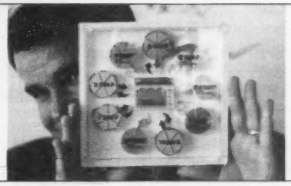
In the Technology section: Battle-hardened users like District of Columbia Deputy CTO Jamey Harvey offer advice on how to develop a successful IT integration strategy. **Page 22**



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In the Management section: When a project is foundering, how do you decide whether to save it or let it die? .And if it is worth saving, how do you get it back on track? Find the answers on **page 40**.

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CAREER FORUM

OUR E-MAILBAG WAS FILLED with "I've been there too" responses to last week's life-after-layoffs feature. Don Tennant gives you some highlights in his editorial (page 20), and you can see more reader comments — and join the discussion — at www.computerworld.com/blogs/careerforum.

> "There is a road back from a lay-off. In my case, it was a network of peers able to look past the 'gray hair.' It wasn't easy and took over a year, but I was successful."
>
> – ANONYMOUS

> "At age 49 with a good current working situation, I am supposedly one of the survivors. The bruised and battered feeling that is continually with me makes me think otherwise."
>
> – SURVIVOR

> "I've warned all my children away from this profession. I told them to be good with computers, but major in something else. I may be third-generation IT, but there will not be a fourth."
>
> – ANONYMOUS

> "Participate at whatever level you can in open-source technologies. If you contribute, then you now have multiple projects that can be used in the interview/prescreening processes."
>
> – JOHN

What You Should Know About IIS 7

SOFTWARE: Our reviewer says Microsoft's Internet Information Services is getting better with age, and Version 7 features modular design, easier management and enhanced security.

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Katrina

Kirschman & Co., a furniture retailer based in New Orleans. "We've been doing this every single day for a year."

For Bassett as well as many other IT managers interviewed by *Computerworld* in late August, it has taken an unrelenting effort to deal with the professional and personal challenges created by Katrina, which struck the Gulf Coast a year ago last Tuesday.

KATRINA: ONE YEAR LATER

Bassett is a member of the National Guard who was called to duty just before Katrina struck and assigned to work in the Louisiana Superdome, where thousands of people took shelter and then waited for days to be evacuated. He runs the IT operations that support Kirschman's retail business from a 250,000-square-foot warehouse in New Orleans. After the levees along some of the city's canals failed, the warehouse became an island in a 6-foot-deep lake and was inaccessible, he said.

The inside of the warehouse, which is raised to accommodate delivery trucks, took on about six inches of salt water — destroying all the wiring that connected the company's systems to the outside world. The copper wiring has since been replaced with fiber, and Bassett has hired redundant telecommunications and data services providers.

But while he works to help Kirschman move in new retail directions, Bassett continues to fight storm-related problems, in particular an unsteady power supply. "We have power outages all the time," he said. "That is probably our biggest hindrance right now."

What may be even worse, though, is what Bassett sees when he drives out of the company's gate. Kirschman's warehouse is in one of the few places in the devastated Ninth Ward neighborhood with any activity. Much of the rest is nothing but a stark landscape of destroyed houses.

Bassett also provided a tour of other neighborhoods where the devastation extends mile after mile. In St. Bernard Parish, just outside New Orleans, he pointed out his uncle's house, which was covered with water and now stands ruined in a deserted subdivision. Not too far away, where the waters didn't rise as high, his grandparents are rebuilding their house. "There is something that we can save in this, and it's going to be home again," he said.

"People are under a lot of personal stress," said Paul Barron, CIO at Tulane University in New Orleans. "There are people working much harder in their jobs here because there are just fewer people, even though we're advertising for [more workers]."

Tulane, which runs one of the larger data centers in the New Orleans area, has about 70 IT staffers but is 10 people short of what Barron said he needs. And things have changed drastically for many of the school's employees.

"A lot of people in the Tulane community and technology services lost everything," Barron said. Some suffered deaths in their families.

The situation in New Orleans remains far from normal, according to Barron. The city's population is only about half what it was before Katrina, and the available housing is expensive. That makes recruiting employees from outside the area difficult. "I desperately need some DBAs but can't find them," Barron said. He added that outsourcing could become a possibility for Tulane if the IT labor supply in New Orleans doesn't increase.

In addition to dealing with on-the-job recovery issues, many IT workers still have to contend with ongoing personal concerns, such as working with contractors to rebuild their homes and trying to resolve insurance claims. Some continue to live in temporary

"The hardest part of this is fatigue. We've been doing this every single day for a year."

KEVIN BASSETT, IT MANAGER AT MORRIS KIRSCHMAN & CO., INDICATING THE HEIGHT FLOODWATERS REACHED OUTSIDE HIS FACILITY

PHOTOS BY PATRICK THIBODEAU

New Orleans CTO MARK KURT (left) and IT manager JEFF TALLEY are working to display key data via GIS technology.

City Reshapes IT Systems To Help in Rebuilding Effort

NEW ORLEANS

HURRICANE KATRINA struck just two weeks after Jeff Talley began running data center operations for the city of New Orleans via an outsourcing deal with Ciber Inc., his employer. On the ninth floor of City Hall, the storm's winds shook the building so hard that "you would lose your footing," said Talley, who stayed in the data center and slept on his office floor.

Afterward, the city's IT operations were a mess. Its main data center was protected inside City Hall, but problems with backup generators and universal power supplies caused numerous servers and disk drives to fail, Talley said. In addition, about 70% of the city's remote IT operations were in areas that were flooded. Some of the remote sites were damaged, and others were left inaccessible.

In the weeks immediately following the storm, routine IT activities, such as issuing paychecks off of the city's mainframe, became important to the survival of the municipal government. "We were afraid that if we didn't run payroll, we would lose some of the employees," said Mark Kurt, an IT manager who was named the city's chief technology officer two months ago.

Since the storm, Kurt and Talley said in a joint interview late last month, the city has been restoring as well as reshaping its IT systems.

For instance, New Orleans has consolidated many of the remote IT operations into its main data center. The city has also installed server virtualization technology on its x86-based systems in order to improve utilization rates and help support a fail-over capability to a hot site that it's setting up at a facility owned by the city of Austin.

"The hot-site concept is so critical," Talley said. "You want to try to reduce the number of people that you have here [during an emergency]. You don't want people to have to go through a Category 5 [hurricane]."

In addition, the city has been working to aggregate data from building permits, crime reports and other documents and display it on maps through the use of geographic information system (GIS) technology. The IT team is also expanding the functionality of self-service kiosks for city residents, to automate processes such as applying for building permits.

The GIS data, which can be accessed from a Web-based user interface, lets city officials easily see where reconstruction activity is the strongest, based on factors such as the number of building permits being issued, Kurt said. He added that workers can also view information about the number of calls for city services, such as requests for street maintenance – which gives them an indication of where people are living.

Now the city wants to add property and sales tax data as well as information about nuisance-property complaints to the GIS tool, according to Kurt. "Being in technology, it's certainly not my job to plan how the city rebuilds," he said. But, he added, the data-mapping work should help New Orleans officials make decisions on key issues, "from what schools you decide to open to where you put police officers."

Talley said that using the hot-site setup in Austin will be much less expensive than it would have been to work with a disaster recovery vendor. New Orleans officials also hope to get reimbursed for some of the new IT costs under federal assistance programs.

– PATRICK THIBODEAU

housing, while many others have simply left the region.

"There are more jobs than people," said David Erwin, CIO at Adams & Reese LLP, a New Orleans-based law firm that also has offices in Washington, Houston and six other cities. Erwin said companies in the New Orleans area are competing against one another for the available IT workers.

"We are in this situation where we're hiring each other's folks," he said. "It's a tough job market [for employers]."

Increasing Costs

Katrina also has made it more expensive to operate IT facilities in the region by compelling companies and other organizations to improve their disaster recovery capabilities.

For instance, Tulane has been spending about $12 million annually on IT, but additional disaster recovery costs will increase its budget by $500,000, Barron said. In part, the increase will pay for a new contract with SunGard Data Systems Inc.'s Availability Services unit, which is providing the school with a mirrored Web site, e-mail fail-over and data processing resumption capabilities.

Tulane could easily spend more on disaster recovery if it were to move from backing up data on tapes to doing online backups, Barron said. But, he added, the bandwidth that would be needed to support the electronic data transfers is too expensive for the school.

Another change for IT managers in New Orleans is that many supply chain partners from outside the Gulf Coast region are now asking them about their disaster recovery plans, making it more than just an internal issue.

Sam Canatella, operations manager at Louisiana Steam Equipment Inc., an 80-year-old maker of industrial equipment that's located a short walk from the Mississippi River in New Orleans, said the large energy firms that make up his company's customer base want more information from him about how to communicate with people in the event of another major storm.

Prior to Katrina, Canatella had installed a remote data backup system for Louisiana Steam's accounting applications at a facility in Houston that is connected to the company's main data center via a virtual private network. Over the next year, he plans to put in a new system that will enable data to be replicated among three sites: company headquarters, the Houston office and a facility in Mississippi.

Disaster recovery was once "a side item," Canatella said. But the damage and disruptions caused by Katrina made him realize that Louisiana Steam's data may be its most important asset. If the company loses goods stored in a warehouse, "I can call the factory and order more," he said. "But I can't replace the information in the computer."

When it's suggested to IT managers that New Orleans may have unique disaster recovery needs because of its location and low elevation, the response is typically a weary smile. They say Katrina's most important lesson is to have a contingency plan that takes into account the utter failure of everything.

Unforeseen Isolation

"What nobody anticipated was complete isolation for a week," said Don Chenoweth, CIO at East Jefferson General Hospital in Metairie, La., which borders New Orleans.

East Jefferson opened in 1971, six years after Hurricane Betsy tore up the region, and it was one of three area hospitals to continue operating during Katrina and its aftermath. It was built at sea level, which is relatively high ground, considering that some adjacent areas are 6 feet below sea level. The facility has 15 generators, redundant communications lines and its own water well.

Chenoweth pulled up photos on his computer showing the hospital completely surrounded by water after Katrina. The water literally came right up to some doors but didn't make it into the building. However, wind and water damage knocked out the electronics of the generator that was supplying backup power to East Jefferson's data center.

After an orderly shutdown on battery power, the data center was out of commission for four and a half days, Chenoweth said. External voice communications were also knocked out, although the hospital had Internet access for all but a 12-hour period.

One thing Chenoweth discovered — and other IT managers said they found as well — was that it was easier to successfully make calls on cell phones that didn't use the local 504 area code. Consequently, East Jefferson has bought a number of cell phones that use the area code for the state capital of Baton Rouge.

In addition, the hospital now has its communications lines connected to three separate BellSouth Corp. access points to provide triple redundancy. It has also installed a satellite connection, and Chenoweth said he is continuing to look at ways to strengthen communications, such as possibly using carriers that don't route lines through local connections.

"What we're trying to do is create a situation here where we have five or six ways we can communicate instead of just a couple," he said. "That was a huge lesson, I think, for just about anybody out here."

Children's Hospital in New Orleans also has installed satellite communications capabilities since Katrina, and it sank a well to boost its water supply, said Mike McSweeney, the hospital's IT manager.

In many cases, though, technology problems will be resolved long before the city itself is fully rebuilt. For the region as a whole, the IT managers interviewed here talked in terms of a five-year recovery time frame. But many said they're uncertain what New Orleans will look like in the years ahead.

McSweeney said that life is still difficult for area residents. "It's tense, and a lot of people are frustrated with insurance companies," he said.

Not too far away from Children's Hospital is Loyola University. Bret Jacobs, its CIO, regularly checks the progress of the neighborhoods that adjoin the university's campus.

In one neighborhood that Jacobs drove through with a visitor, there were contractors' signs at almost every house and workmen everywhere. But as he drove farther from the campus, keeping an eye out for the potholes that can appear overnight, the brown, rust-colored lines that show floodwater levels were still visible on many buildings, gradually rising higher.

In areas where the floodwaters were highest, fewer contractors were at work. But one house had a sign proclaiming, "We will rebuild." Pointing to it, Jacobs said, "There is a real sense of, 'We have to.' "

State CIO Moves Fast to Improve Data Backup Capabilities

BATON ROUGE, LA.

RIZWAN AHMED has been the Louisiana state government's CIO only since March. But he moved quickly to capitalize on a change in attitude toward funding disaster recovery projects, in order to fix what he saw as a pressing IT vulnerability for the state.

AHMED has moved to electronic data backup.

Both of the state's data centers are located in the capital city of Baton Rouge, which is about 80 miles northwest of New Orleans. "We are not very far from New Orleans or harm's way," Ahmed said. The state does ship its data backup tapes to an Iron Mountain Inc. storage facility, but that also is located in Baton Rouge. "Everything is here," he said.

After Ahmed was appointed CIO, he quickly proposed and won legislative support for a plan to back up critical data on disk drives and then transfer the information electronically to a "replication center" that will be located at Louisiana Tech University in Ruston, in the northern part of the state. To reduce file sizes, Louisiana will use data compression technology developed by Data Domain Inc. that supports compression ratios between 1:30 and 1:60, according to Ahmed.

Building a full data center in a remote location would cost millions of dollars and take a considerable amount of time, Ahmed said. In contrast, he expects the cost of constructing the storage-oriented replication center in an existing building at Louisiana Tech to be about $1 million, plus another $160,000 for IT hardware. The center is scheduled to be operational by next year's hurricane season, which starts June 1.

Ahmed, who concurrently served as CIO of the Louisiana Department of Natural Resources and the state government's group benefits office before taking his current job, said state officials gave immediate support to the electronic backup and replication plan. After Katrina, he added, there was "a little bit of a change" in how the state's finance managers viewed funding requests for disaster recovery projects.

In case the state ever needs to start up full-fledged IT operations at the replication facility on an emergency basis, Ahmed intends to contract with operators of mobile data centers – preconfigured servers and workstations that can be operated off of trucks. Pilot projects with such companies are being planned, he said.

Ahmed is also talking with IT officials in some neighboring states about the possibility of signing joint agreements to protect data.

Ahmed realized that it was important to capitalize on the momentum for disaster recovery funding generated by Katrina, which is why he put the data replication project so high on his agenda after he became CIO. But he does worry that as time goes by, government officials could put off funding other needed projects. "We have a very short memory," he said.

– PATRICK THIBODEAU

AT DEADLINE

Alcatel Agrees to Buy Nortel 3G Business

Alcatel SA has signed a preliminary agreement to purchase Nortel Networks Corp.'s third-generation mobile phone network business for $320 million. The nonbinding merger agreement requires the two companies to arrive at final acquisition terms, complete negotiations with works councils and secure the approval of regulatory agencies before closing the deal.

Lenovo Hires Another Executive From Dell

Lenovo Group Ltd. last week named Gerry Smith senior vice president of its global supply chain. Smith, previously a Dell Inc. vice president responsible for its Singapore design center and displays unit, is the fifth executive from the PC maker to join Lenovo over a two-week period. At Lenovo, Smith replaces Liu Jun, who is taking a one-year sabbatical.

Microsoft Updates Virtualization Beta

Microsoft Corp. has released another test version of an update to its virtualization software, which will be built into the next version of the Windows Server operating system. Beta 2 of Virtual Server 2005 Release 2 Service Pack 1 adds support for Advanced Micro Devices Inc.'s virtualization technology, as well as improved integration with Microsoft Active Directory services.

Emulex to Buy Sierra Logic for $180M

Storage products maker Emulex Corp. has agreed to acquire Sierra Logic Inc. for $180 million in a move to expand its position in the market for embedded storage components. Emulex said the deal should be completed by Sept. 30 and will contribute an incremental $8 million to $10 million in revenue in the fourth quarter. Most of the 70 Sierra Logic employees, including CEO Bob Whitson, are expected to join Emulex.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL

MATTHEW FAULKNER

IT Can Play Big Brother . . .

. . . when you want to watch your IT workers. Two weeks ago in this column, you read about 6th Sense Analytics Inc., a Raleigh, N.C.-based vendor of software that monitors the work habits of programmers. But it isn't just developers who are coming under automated scrutiny. Symark International Inc., which does business as Symark Software, thinks it's wise to keep an eye on systems administrators as well. "They're the people who have the keys to the kingdom," observes Ellen Libenson, vice president of product management at Agoura Hills, Calif.-based Symark. Sysadmins are also the ones who launch the most insider attacks, according to the "Insider Threat Study" released jointly last year by the U.S. Secret Service and the U.S. Computer Emergency Readiness Team. The report analyzed 49 incidents of internal IT sabotage and found that more than four-fifths of the events were triggered by tech staffers. Of those incidents, the largest segment — 38% — involved sysadmins. According to Libenson, the problem — besides vengeful IT workers — is root passwords and what you can do with them. Her company's PowerBroker and PowerKeeper products manage root access and track sysadmin tasks, and they can alert managers when the actions of workers don't match internal IT policies. But Libenson acknowledges that installing Symark's tools can be disruptive to your staff. "Often, we do see that if the requirement [for monitoring software] comes down from on high, people can be somewhat hostile," she says. But Libenson contends that the tension can be mitigated if managers sit down with IT staffers and explain why the tools are needed while stressing that they "can also be used in a positive way to show how much work [people] have done." The software does track *all* activity — even the good stuff.

87% Portion of insider attacks by tech staffers, says US-CERT and the Secret Service.

Connect with your business partners . . .

. . . via an online integration service. Software as a service may have to make room for integration as a service, if Andrew Dent has his way. Dent is chief technology officer at Hubspan Inc., and he says that if you connect your apps to the Seattle-based vendor's online service, it will manage connectivity between them and those of your partners. Dent says Hubspan supports "scores" of communications protocols, and the company handles myriad data formats as well — everything from flat files to EDI, Rosetta and XML. Currently, Hubspan manages connections between 2,000 companies, according to Dent. He brags that the six-year-old company's experience means it "can always be better and faster at building connections than an internal group." And he claims that in the coming months, software vendors will begin releasing versions of their products that are compatible with Hubspan's service, making the integration even easier.

7k Application connections currently managed by Hubspan.

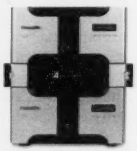
Software gets a sandbox to play in . . .

. . . before it's launched online. In two weeks, NaviSite Inc. in Andover, Mass., will unveil ISV Sandbox, a free virtualized environment that independent software vendors can use to test how well their code runs as a hosted application or shared service. According to Mike Mazur, vice president of channel sales and alliances at NaviSite, the company's data center resources will be available free to qualified vendors. Those who need help optimizing their code for an online environment can buy consulting services from NaviSite. The company is a Microsoft Corp. business partner and uses Windows, SQL Server and other Microsoft technologies to support its data center infrastructure. Mazur says that Microsoft backs the ISV Sandbox program because the software giant understands that online software delivery "is part of the future" for independent software vendors. "We get so much love from Microsoft," he says. It's good to know that someone does.

80 Windows apps hosted by NaviSite for ISVs.

Keep your data archive active. . .

. . . so end users can access info quickly. "An archive is where data goes to die," says Jonathan Buckley, vice president of marketing at PowerFile Inc. in Santa Clara, Calif. The problem is that not all archived information goes to bit-and-byte heaven permanently. Buckley estimates that 10% of all archived data gets brought back to life for a variety of reasons — everything from external audits to internal research. Compounding the problem, he says, is that you never know which 10% will come back from the grave. Hence, he claims, you need an "active archive." This week, PowerFile will release its Active Archive Appliance, or A3. Priced at $15,900, the A3 packs 3.4TB of storage capacity on optical media. You can link a string of A3s and configure them as a single drive letter with more than 30TB of space. A Blu-ray option will be ready in the first quarter of next year. And Buckley predicts that within 24 months, PowerFile will deliver a system capable of holding a 1 petabyte archive.



PowerFile's A3 appliance stores not-dead-yet data.

_INFRASTRUCTURE LOG
_DAY 19: The business is, uh, coming apart. I.T. isn't in sync with the suits. No one's sure what they need to do. It's totally out of control.
_DAY 20: Gil fell into the crack. Maintenance is on it.
_DAY 24: I've got it. IBM Rational. A modular platform that lets us govern the entire development process and align it with our business goals. Now everyone's on the same page. Plus, we can ensure our software's in compliance and implement a service oriented architecture.
_Everyone's glad the crack is gone. Gil says his nightmares about "the dark place" are practically over.
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White House Seeks Fresh Info on Smart-Card Efforts

Top IT exec calls for updates on plans for complying with security directive

BY JAIKUMAR VIJAYAN

FEDERAL AGENCIES last week were told to provide the White House with an update by this Friday on their readiness to comply with a presidential directive requiring them to start issuing smart identity cards to all government employees and contractors by Oct. 27.

The updates were requested in a memo sent by the White House Office of Management and Budget (OMB) to agency CIOs. The memo included a template for agencies to use to update information on their strategies for implementing the requirements of the smart-card directive and on the status of their efforts to do so.

The smart-card mandate, officially known as Homeland Security Presidential Directive 12, was issued in August 2004. HSPD-12 requires all federal agencies to use a common ID credential — so-called personal identity verification (PIV) cards — to authenticate workers and control access to buildings and IT systems.

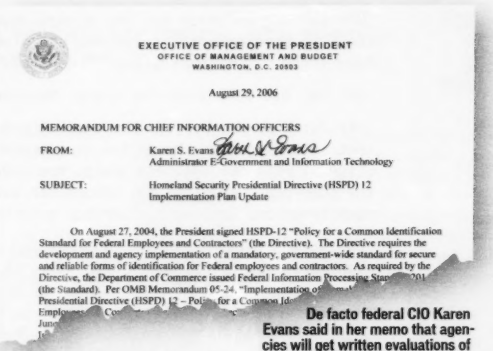
Last week's memo from de facto federal CIO Karen Evans came at a time when many agencies are scrambling to meet what is widely viewed as an extremely aggressive deadline, said Greg Kriezman, an analyst at Gartner Inc.

"OMB is in the habit of setting the bar high in terms of getting things done," Kriezman said. He added that the level of preparedness among agencies is "a real mixed bag" at this point.

In February, the Government Accountability Office released a report listing several challenges that agencies faced in meeting HSPD-12. Among them was too little time to test and acquire the needed IT equipment, as well as the budgetary risks involved in implementing biometric security tools built around technology standards that had yet to be finalized.

Linda Koontz, director of information management issues at the GAO, said last week that some of the problems cited in the report are on their way to being resolved. For instance, products that comply with the technology standards set by the government for HSPD-12 have started to become available, Koontz said.

Koontz added, though, that agencies still face hurdles. "I think the OMB is being aggressive on this, and they are trying to move the government," she said. "But budgetary concerns and the time frame still remain a challenge."



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

August 29, 2006

MEMORANDUM FOR CHIEF INFORMATION OFFICERS

FROM: Karen S. Evans
Administrator E-Government and Information Technology

SUBJECT: Homeland Security Presidential Directive (HSPD) 12
Implementation Plan Update

On August 27, 2004, the President signed HSPD-12 "Policy for a Common Identification Standard for Federal Employees and Contractors" (the Directive). The Directive requires the development and agency implementation of a mandatory, government-wide standard for secure and reliable forms of identification for Federal employees and contractors. As required by the Directive, the Department of Commerce issued Federal Information Processing Stan[illegible]201 (the Standard). Per OMB Memorandum 05-24, "Implementation of [illegible] Presidential Directive (HSPD) 12 – Policy for a Common Ide[illegible] Employees [illegible] (Co[illegible]

De facto federal CIO Karen Evans said in her memo that agencies will get written evaluations of their updated smart-card plans.

On the technology front, all of the major standards related to the deployment of the new cards have been published, said William MacGregor, manager of the PIV program at the National Institute of Standards and Technology. NIST was responsible for drafting the standards on which the PIV cards are based.

"Many policies and operating procedures need to be established for card issuers, of course," MacGregor said. But those "are not technology standards per se, and generally they are the responsibility of the agency and the PIV [card] issuer," he added.

In her memo, Evans noted that only changes to previously stated implementation plans need to be submitted to the OMB this week. OMB officials will provide agencies with written evaluations of their updated plans, she wrote. ▸

List of Data Breach Notices Lengthening

AT&T, Sovereign and Verizon Wireless among latest to report security snafus

BY JAIKUMAR VIJAYAN

The steady stream of data compromises continued unabated last week, with several more companies disclosing security breaches.

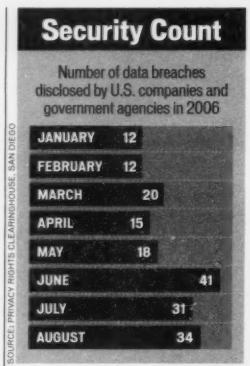
One of the biggest snafus involved AT&T Inc., which said that malicious hackers had made off with credit card information and other personal data belonging to about 19,000 customers of the company's online store for Digital Subscriber Line equipment.

In a statement, AT&T said "unauthorized persons" had illegally hacked into one of its computer systems and accessed the customer data. The intrusion, which took place on the weekend of Aug. 26 and 27, was discovered "within hours," and the online DSL store was immediately shut down, according to AT&T.

If there's a continuing lesson to be learned from such incidents, it's that companies need to pay more attention to data security, not just network security, said Ron Ben-Natan, chief technology officer at Guardium Inc., a security tools vendor in Waltham, Mass.

"The bottom line is that the data is leaking and is not being contained in the way it should be," he said. Companies must pay more attention to measures such as activity monitoring and auditing, encryption, data classification and policy enforcement, he added.

Corporate users also need to adopt more "systemic security management" approaches, said Doug Graham, a partner at BusinessEdge Solutions Inc., an IT consulting firm in East Brunswick, N.J. "People want things to be secure, but too often they tend to see security as a problem for the security guys," he said. Instead, the goal should be to make security an integral part of all business processes, Graham said.



Among the companies reporting breaches last week was Philadelphia-based Sovereign Bancorp Inc., which said that three laptop PCs containing confidential information about bank customers had been stolen in two separate incidents in early August. Sovereign spokesman Carl Brown declined to disclose how many people were affected by the thefts, saying only that the number amounts to about 1% of the bank's customer base.

None of the data on the stolen laptops was encrypted, although the systems were password-protected, Brown said. That met corporate security policies, he added.

Mobile network operator Verizon Wireless disclosed that on Aug. 21, an employee accidentally sent an e-mail with an attachment containing the names, cell phone numbers, e-mail addresses and phone models of nearly 5,000 customers to about 1,800 other subscribers. The attachment was supposed to have been an electronic order form.

In an e-mailed comment, a spokesman for Verizon Wireless said the affected customers were informed of the breach but also were advised that the compromised data was unlikely to be of much use to identity thieves.

On Aug. 22, a laptop belonging to the Federal Motor Carrier Safety Administration was stolen. The FMCSA, which is part of the U.S. Department of Transportation, said last week that the laptop is believed to have contained the names, dates of birth, Social Security numbers and other personal data of about 193 people who hold commercial driver's licenses across 14 states.

An FMCSA spokesman said the agency isn't 100% sure that the laptop contained the personal information and only made that assumption based on the system's last interactions with its network. ▸

_INFRASTRUCTURE LOG
_DAY 18: Everything is frozen. It's our processes. They're inflexible. We can't respond to change.
_Why did we lock ourselves in like this? Brrrr.
_DAY 19: A way out. IBM WebSphere middleware for Business Process Management. It lets us streamline business tasks. We can test our processes before we roll them out and monitor performance once they're deployed, and reuse is easy because it's based on a service oriented architecture.
_Everything's unfrozen now. Wow, it's good to feel my toes again.
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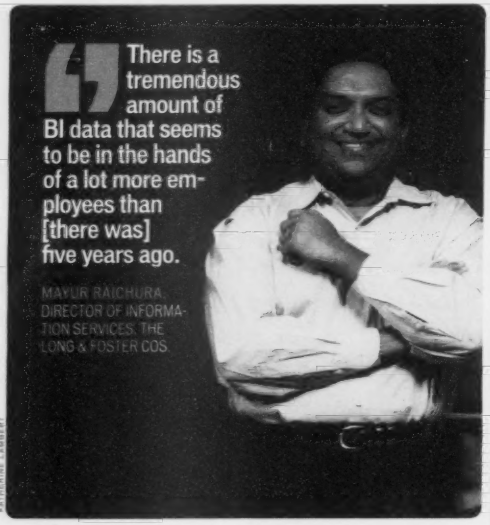

There is a tremendous amount of BI data that seems to be in the hands of a lot more employees than [there was] five years ago.
MAYUR RAICHURA, DIRECTOR OF INFORMATION SERVICES, THE LONG & FOSTER COS.
KATHERINE LAMBERT

tiative that will place a heavy emphasis on securing BI data.

"There is a tremendous amount of BI data that seems to be in the hands of a lot more employees than [there was] five years ago," Raichura said. "The average user outside of IT doesn't have a clear understanding of the implications of what they do in terms of downloading data."

In addition, the Fairfax, Va.-based real estate company has historically had "no policies on how this data is given to [employees] and what they do with it once they are given it," he added.

At the meeting, Raichura and his fellow executives decided to hire a corporate chief security officer, assess the security of each internally developed and packaged application at the company, and create a set of corporate security standards during this year and into 2007, Raichura said.

Six weeks ago, Long & Foster began to deploy a system to warn users about downloading salary and financial-incentive information to spreadsheets on desktops and laptops, he added. The new system issues a pop-up warning to users each time they attempt to download sensitive data into an unsecured spreadsheet on desktop and laptop systems, Raichura said.

He acknowledged that the new policy does not prevent any of the company's 2,500 employees from inputting data from paper-based BI reports into an Excel spreadsheet.

"We are just beginning to bring control over [data from printed reports]," he said. "That is the one area I know we need to be very good at."

The new emphasis on security by Long & Foster IT and financial officials has been supported by a "fantastic awareness" of the issue by executives outside of IT, which was brought about mostly by recent high-profile data breaches, Raichura added.

A year ago, Long & Foster itself was the victim of the theft of a laptop from inside one of its buildings. Although the data on the machine — requirements for a new BI system, written in Microsoft Word — does not appear to have been misused, the theft prompted the company to establish a policy requiring all employees to take their laptops home every day.

The policy, which Raichura acknowledges may seem counterintuitive, aims to promote a sense of responsibility among users, prompting them to "guard the laptop like it is personal property."

Few Are Vigilant

Bill Hostmann, an analyst at Gartner Inc., said that while many organizations go to great lengths to secure transactional systems and Web applications, many more "do almost nothing, or a very limited amount," to protect data housed in BI applications and spreadsheets.

"[Users] may have [sensitive] data on their PC in a spreadsheet, Access database or on an unprotected/shared workgroup server," Hostmann said. "It's often the company's most sensitive data, too."

Michael Hader, director of IT at Odom's Tennessee Pride Sausage Inc., said his company is tackling BI security at the desktop log-in function and with a tool that limits the changes that users can make to spreadsheets.

The Madison, Tenn.-based company uses Microsoft's Active Directory to ensure the security of its BI reports

Securing Spreadsheets

- Don't allow users to copy reports and spreadsheets generated in a BI system into an empty spreadsheet for modification.
- Put in place a header and a footer in every report delivered from the system, noting that it is authorized, unmodified and cannot be copied.
- Discipline users who break corporate policy and modify reports.

SOURCE: GARTNER INC., STAMFORD, CONN.

BI, Spreadsheet Vendors Push to Improve Security

TO MEET growing user demand for business intelligence security, Microsoft Corp. has pledged to improve the security of Excel spreadsheets in its upcoming Office 2007 release. In addition, several BI tool vendors are touting security upgrades for both reporting tools and spreadsheet front-end products.

Alex Payne, product manager in Microsoft's Office business applications group, said that Office 2007 will provide improved integration of Excel with the BI reporting and analysis capabilities in the company's SQL Server 2005 software. The tighter integration of Excel with the BI tools will allow corporate IT operations to apply Windows authentication to users trying to access SQL reports or analysis cubes from Office, he added.

Office 2007 is scheduled to be available to business users later this year.

The new version of Excel will also allow users to store and manage spreadsheets from a central server so IT administrators can create business rules for accessing data, Payne said.

Meanwhile, Cognos last month disclosed the results of a security evaluation on the Cognos 8 BI tool set it launched last fall with the promise of improved security. Cognos 8 added prebuilt links to third-party security tools and to Microsoft's Active Directory.

The evaluation, which was performed by security vendor Symantec Corp. and funded by Cognos, determined that none of the Cognos 8 tools "contained a high risk of common Web application vulnerabilities."

Harriet Fryman, senior director of product marketing at Cognos, said that the Cognos 8 BI tools can also integrate with enterprise security tools, such as authentication and single sign-on systems, reducing the need to maintain multiple corporate security systems.

James Thomas, director of product marketing at Paris-based Business Objects SA, said that the BI vendor encourages companies to require that spreadsheets be used only within a corporate BI system, to ensure that the data remains secure.

> The whole concept is not to tell people they can't use spreadsheets [but] to manage and secure information.
>
> JAMES THOMAS, DIRECTOR OF PRODUCT MARKETING, BUSINESS OBJECTS SA

The Business Objects XI BI tool set encrypts all communication and can be integrated with the Lightweight Directory Access Protocol and with Active Directory, according to Thomas. The Business Objects software can apply preset security policies to police access of spreadsheets and reports, he added.

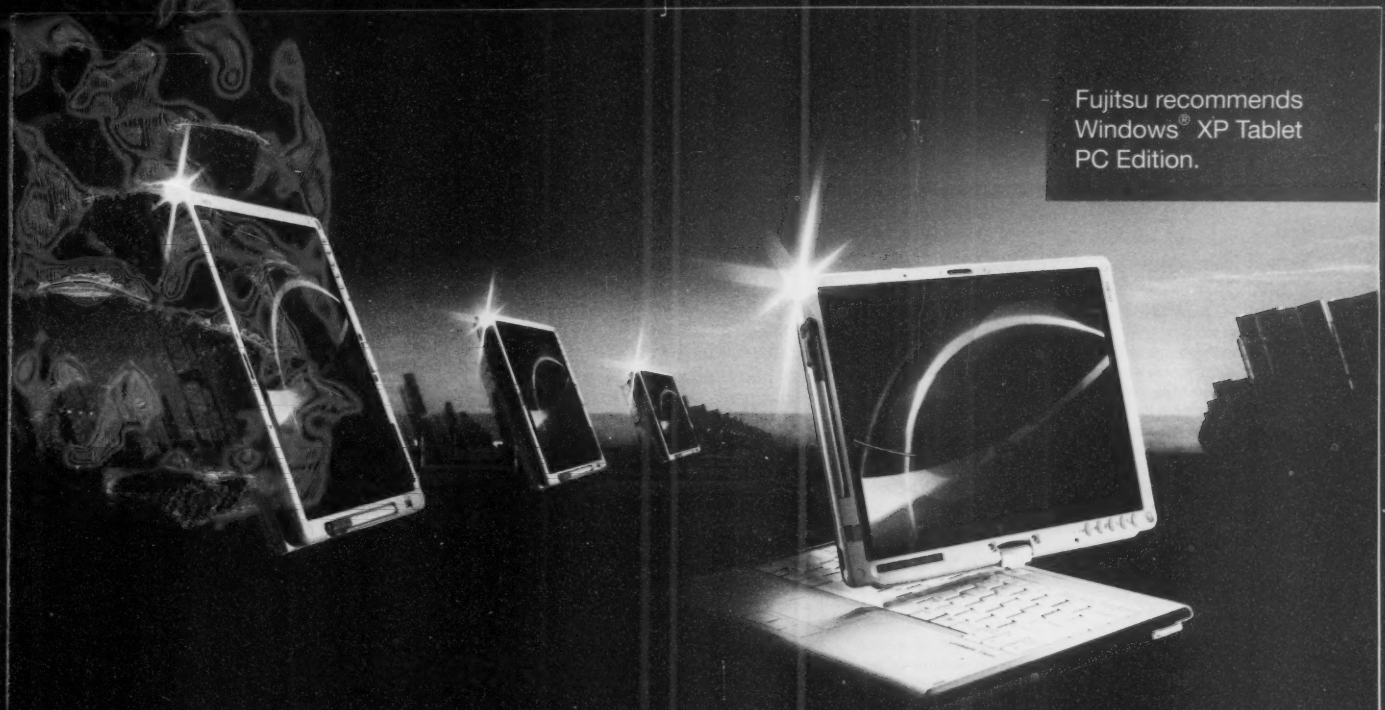
A plug-in to Excel allows the Microsoft spreadsheet to be used to securely access corporate data from the Business Objects product, Thomas said. "Excel is probably the most widely used BI tool," he said. "The whole concept is not to tell people they can't use spreadsheets [but] to manage and secure information."

The future of securing BI may lie with emerging identity management systems, Thomas added. Business Objects has been evaluating the identity management system of Sxip Identity Corp. in Vancouver, British Columbia, as an option for a centrally managed ID system that it may add in three to five years.

Users equipped with a key fob or other security token could log into a central ID management system once from any location and obtain access to multiple systems, Thomas said. Some Business Objects users have already begun using key fobs and retinal scanning to provide access to BI systems, he added.

Wayne Eckerson, director of research at The Data Warehousing Institute, said that many BI tools provide role-based access, encryption of data across the network and/or integration with third-party security systems. However, he noted, organizations have to weigh security against ease of access to the information users typically demand.

– HEATHER HAVENSTEIN



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BRIEFS

Novell Investigates Stock-Option Plan

Novell Inc. has begun to investigate how the company granted stock options to employees in recent years and to assess whether earnings will have to be restated. The Linux vendor made the announcement when it reported its preliminary third-quarter results. Novell's internal review comes as the U.S. Securities and Exchange Commission widens a probe into fraudulent stock-option practices at U.S. firms.

Sun Links Storage Service Business

Sun Microsystems Inc. has combined its service offering with that of Storage Technology Corp., the storage vendor it acquired a year ago for $4.1 billion. The Sun StorageTek Service Plans combine Sun's SunSpectrum and StorageTek's TekCare support programs. The new plan allows StorageTek customers to access Sun's eLearning Library along with the StorageTek knowledge base for product support.

Corel Pays $196M For Multimedia Firm

Corel Corp. has agreed to purchase multimedia software maker InterVideo Inc. for $196 million in cash. The move is Corel's second acquisition this year, as it looks to extend its product lines with video-based and multimedia offerings. It purchased WinZip in May. Corel's primary product lines are now CorelDraw, Paint Shop Pro and WordPerfect.

Intel Unveils Merom Chip for Notebooks

Intel Corp. announced its Merom notebook chip, which will run new models from Dell Inc., Gateway Inc. and Toshiba America Inc. Merom is the third product launched in recent months in Intel's new line of dual-core, 65-nanometer processor chips built with the Core 2 Duo architecture. The company launched its Woodcrest Xeon 5100 chip for servers in June and its Conroe Core 2 Duo chip for desktops in July.

and spreadsheets. It is building portals, customized for partners and customers, that use directory services to determine which reports or spreadsheets can be accessed by specific external users. The portal was built using BI tools from Actuate Corp. in South San Francisco, Calif.

"Unless the report exists in their Actuate portal, they won't even know it exists, period," Hader said. "We even deploy spreadsheets in that manner — that can be our first line of defense on a spreadsheet."

Preventing Access

In addition, Odom's Tennessee Pride uses the Actuate Spreadsheet Application Platform development tool to prevent users from changing cells within a spreadsheet, he said. The tool also lets the company prevent users from directly accessing the database to try to build reports, he said.

The company plans to create an additional layer of security in a few months by using Actuate's new Actuate 9 enterprise reporting suite, which is scheduled to ship later this year, Hader added. The tool will allow the company to fine-tune spreadsheet security so that users will be limited to which portions of a spreadsheet they can see, based upon their roles in the company.

Mark Lack, planning and financial analysis manager at Mueller Inc. in Ballinger, Texas, said his company in May expanded its BI security efforts by integrating its Cognos 8 tools from Ottawa-based Cognos Inc. with its Active Directory services, using a link included in the Cognos tool set. Lack said Active Directory is used to maintain corporate security policies.

Until May, the manufacturer of steel buildings and metal roofing was using the native BI security included in the previous version of the Cognos BI suite, he said.

"[Now] you have the locked-tight security of our ERP system that people can't get into," Lack said. "[The Cognos native] security was used to assign accessibility to different aspects of the software versus to lock down and secure and keep people out of the system. By using [Active Directory services], you can pass through the different levels of security into the BI system and then make the assignments from there."

> **"Cutting people off from doing additional analysis is just an impediment to productivity. If people are trusted to have certain levels of information in our company, we trust them to have it."**
>
> MARK LACK, PLANNING AND FINANCIAL ANALYSIS MANAGER, MUELLER INC.

The move to update the BI security capabilities was prompted in part by plans to significantly boost the number of Mueller users who can access the Cognos software, Lack said. Today, he said, 75 users can access the BI tools. By the end of the year, the system will be rolled out to 200 more users.

In addition, Active Directory eliminates the need for users to have multiple passwords, Lack said, noting that some users tape their passwords to their laptops because they can't remember them all.

Downloading Danger

The problem of downloaded spreadsheets on laptops is "a big threat that hasn't received a lot of attention from BI vendors," said Wayne Eckerson, director of research at The Data Warehousing Institute in Seattle.

Ironically, Eckerson added, BI vendors have spent millions of dollars converting PC-based tools to the Web, only to be forced by customer demand to return at least partially to the desktop to provide strong Office and Excel integration.

"I guess [vendors] can elect to turn off Excel interfaces, but only at the risk of alienating users," Eckerson said. "It's a real conundrum."

Despite the warnings, not all companies are scrambling to secure spreadsheets.

Grant Felsing, decision support manager at lawn mower engine manufacturer Briggs & Stratton Corp. in Wauwatosa, Wis., noted that most of the BI data stored on desktop spreadsheets at the company would be of little use to unauthorized users. The company does not store personal information in the application; it stores mostly internal manufacturing data, he said.

However, he added, "I think we have the same vague concern as everyone else that since Excel is the ultimate BI tool, there should be something stronger than desktop security protecting some of these assets."

Lack noted that although Mueller is improving the security of its Cognos BI tools, the company has no policies related to what employees can download into Excel, and it has no plans to address the issue. He said that users can always use e-mail or print out information if they want to distribute it without using a spreadsheet.

"Cutting people off from doing additional analysis is just an impediment to productivity," Lack said. "If people are trusted to have certain levels of information in our company, we trust them to have it." ▸

Sarbanes-Oxley Pushes Del Monte to Secure BI, Spreadsheets

There's another impetus besides the recent rash of laptop thefts and data breaches that's prompting some companies to take a new look at policies that limit access to business intelligence systems and spreadsheets: the Sarbanes-Oxley Act. Alec DeSimone, senior manager of internal audit at San Francisco-based Del Monte Foods Co., discussed his company's efforts to improve the security of its BI tools and spreadsheets in an interview with *Computerworld* last week.

What is driving the emphasis on BI security at Del Monte? With [Sarbanes-Oxley Act requirements], we're finding that we needed to take a more in-depth look at how we secure BI and spreadsheets.

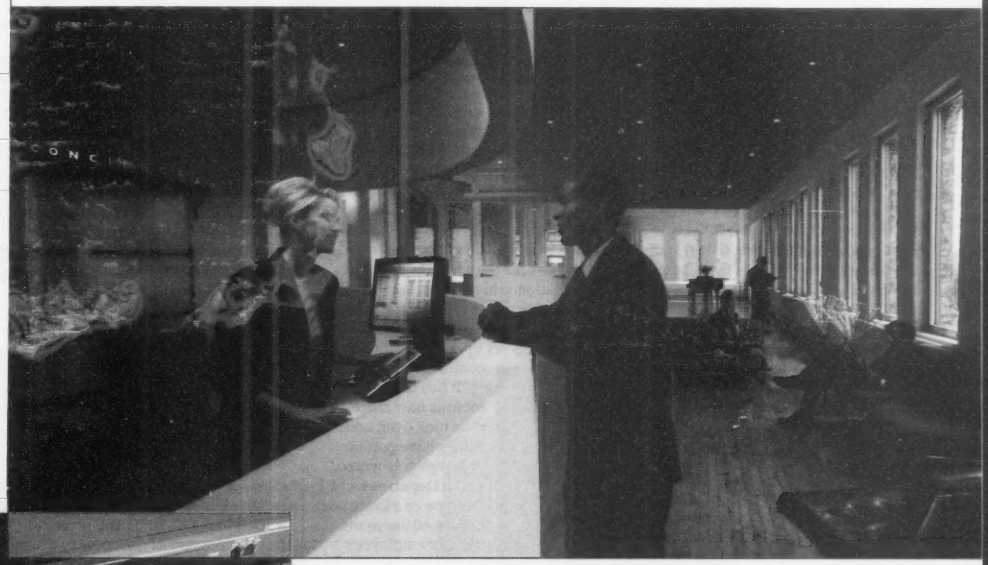
We set up some preliminary practices in [early 2005] to secure the data, and to ensure that data – especially data that flowed through spreadsheets – was presented consistently. We set up a change management process. We put the spreadsheets on servers that had limited access.

Do you have policies in place now that limit the downloading of spreadsheets? We limit people's access to the BI system. We have security over that data. Our feeling is that if they have been granted a certain type of access to the data . . . that is our security over what they can download and what they can't.

What are your plans for future BI security projects? We have a pretty robust BI security plan in place. We now are trying to standardize our access and security procedures across all platforms. We have several different access processes for various transactional systems and for separate BI tools.

We have a project in place to start standardizing our process for granting, changing and deleting access to all our platforms and applications. That was driven out of SOX. The more individual processes you have in place, the more expensive it is to comply with SOX.

– HEATHER HAVENSTEIN



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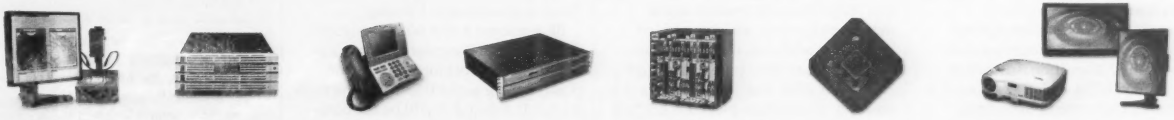

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GLOBAL DISPATCHES

An International IT News Digest

Insurer Takes Control Of Offshore Operations

LONDON

AVIVA PLC, an insurer in London, last week announced plans to transfer more than 5,000 business process outsourcing (BPO) staffers from several services firms based in India to its Aviva Global Services unit.

The process is slated to be completed by January 2008 and includes the transfer of third-party facilities in Bangalore and Pune, India, and in Colombo, Sri Lanka, to the Aviva unit. Financial details weren't disclosed.

A spokeswoman for Aviva Global Services said the proposed transition doesn't reflect any dissatisfaction with the insurer's BPO service providers in India — ExlService Holdings Inc., 24/7 Customer Inc. and WNS Global Services Ltd. The shift is part of a plan that Aviva initiated in 2003 to outsource work to Indian contractors under a build-operate-transfer model, she said. Under that model, services firms set up and staff facilities that do work for Aviva, which can take control of the facilities and their workforces at a later date.

After the transition is completed, ExlService Holdings and 24/7 Customer will continue to operate BPO facilities for Aviva in Noida and Chennai, India, respectively, the spokeswoman said. Aviva expects to employ 7,800 internal and external BPO workers in India and Sri Lanka by the end of 2007.

■ JOHN RIBEIRO, IDG NEWS SERVICE

GLOBAL FACT

$500M

Projected spending on servers and networking hardware by small and midsize businesses in India this year.

SOURCE: ACCESS MARKETS INTERNATIONAL PARTNERS INC., NEW YORK

Performance Problems Plague Support Deal

SYDNEY, AUSTRALIA

LESS THAN a year after signing a five-year IT outsourcing deal worth $200 million Australian ($152 million U.S.) with Kaz Group Pty., Australia's Department of Defence said it is experiencing network performance and service-delivery challenges.

Kaz, a Sydney-based subsidiary of Telstra Corp., is providing technology and network support services for 90,000 desktop systems across 325 Department of Defence sites, as well as round-the-clock support for the agency's IP-based, restricted-access WANs.

Defence Department officials declined to disclose details of the network support problems, but a spokesman said that the department is working to "address the underlying issues as quickly as possible." The spokesman didn't blame Kaz for the problems but said the remediation initiatives include the formation of teams to identify the cause of high call volumes to the IT service desk the company set up. Kaz declined to comment last week.

"It has been 10 months now since they took over, and things have gotten progressively worse," said a Department of Defence employee who requested anonymity. The employee's complaints included a 45-minute wait to get through to the help desk and "constant" outages.

■ RODNEY GEDDA, COMPUTERWORLD AUSTRALIA

Taiwan Chip Maker Files Complaint Against Rival

HSINCHU, TAIWAN

TAIWAN SEMICONDUCTOR Manufacturing Co. has accused Semiconductor Manufacturing International Corp. of breaking the terms of a January 2005 settlement agreement that ended a patent infringement lawsuit filed in a U.S. federal court.

In its new complaint, which was filed Aug. 25 in a California state court, TSMC contended that Shanghai-based SMIC continues to use its trade secrets. Hsinchu-based TSMC is seeking unspecified monetary damages and injunctive relief.

SMIC agreed to pay TSMC $175 million (U.S.) over six years to settle the patent lawsuit, which was filed in 2003. In addition, the companies cross-licensed their patents through December 2010. But TSMC claims that an audit of materials placed in escrow by SMIC as part of the settlement showed that the Chinese company had stolen trade secrets related to the production of microchips.

SMIC denied the allegations and accused TSMC of acting in bad faith. In a filing submitted last week to The Stock Exchange of Hong Kong Ltd., SMIC said it "has worked diligently to honor the [settlement] agreement and has complied with its terms."

■ SUMNER LEMON, IDG NEWS SERVICE

Intel, Communist Party Team on Open-source

HO CHI MINH CITY, VIETNAM

INTEL CORP. has agreed to help Vietnam's Communist Party move its computers to open-source software.

Under a memorandum of understanding, Intel will help the party's Central Committee for Science and Education set up a laboratory called OpenLab for developing and testing open-source technology. Over the next three years, the lab will oversee the installation of open-source software on about 27,000 PCs equipped with Intel processors, the chip maker said.

The party's use of open-source technology is part of a wider effort that the Vietnamese government started in 2004 to cut IT costs and promote the development of the country's local software industry. In February, Intel announced plans to build a $300 million test and assembly plant in Ho Chi Minh City. The company said at the time that it expected the plant to eventually employ about 1,200 workers.

■ SUMNER LEMON, IDG NEWS SERVICE

BEA Taps India Facility As Its Development Hub

BANGALORE, INDIA

BEA SYSTEMS Inc. plans to make India its worldwide hub for research and development, a move that the software vendor's top executive said will let it take advantage of skilled workers in that country.

Alfred Chuang, BEA's chairman and CEO, said at a press briefing here that the San Jose-based company expects to increase the number of software developers and support workers at its operations in Bangalore to about 550 as soon as possible. BEA currently employs 205 developers and 70 support staffers in the city, according to Chuang.

BEA opened a new 60,000-square-foot facility in Bangalore prior to announcing the workforce expansion plan. Chuang noted that when the facility is fully staffed, it will be the company's largest development operation worldwide. Engineers in Bangalore work on BEA's WebLogic and AquaLogic products, Chuang said.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Compiled by Mike Bucken.

Briefly Noted

Alcatel SA shareholders are being urged by Paris-based Proxinvest to reject the networking vendor's proposed merger with Murray Hill, N.J.-based Lucent Technologies Inc. Proxinvest said that strategic aspects of the agreement make sense but that the financial terms appear "quite unfavorable" to Alcatel shareholders. A U.S. advisory group, Institutional Shareholder Services Inc., supports the deal.

■ JEREMY KIRK, IDG NEWS SERVICE

OneSteel Ltd., a steel maker in Sydney, Australia, has extended an IT services contract with Computer Sciences Corp. for three years. The contract is valued at about $50 million Australian ($38 million U.S.) and includes an option for two more years. El Segundo, Calif.-based CSC provides IT services at OneSteel's plants in Newcastle and Whyalla, Australia.

■ COMPUTERWORLD AUSTRALIA

Bharti Airtel Ltd. has awarded LM Ericsson Telephone Co. a $1 billion (U.S.) contract to expand and upgrade the Delhi, India-based mobile services provider's network. Under the three-year agreement, Stockholm-based Ericsson will manage the deployment of Bharti Airtel's upgraded network to help the carrier expand in rural India.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Nokia Corp. in Espoo, Finland, said it plans to integrate intrusion-prevention software from Columbia, Md.-based Sourcefire Inc. into its network security appliances by year's end. Sourcefire's technology, which is based on the open-source Snort software, scans networks for suspicious activity, which it can block or report to administrators.

■ ROBERT McMILLAN, IDG NEWS SERVICE

Greenpeace International has rated Nokia highly for its eco-friendly policies. But the Amsterdam-based environmental group gave low marks to Lenovo Group Ltd., Motorola Inc., Apple Computer Inc. and other vendors. Greenpeace scores companies on their use of hazardous chemicals and their recycling and equipment take-back policies.

■ JEREMY KIRK, IDG NEWS SERVICE

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Hackers Still Drive Open-source Development, Says Red Hat Exec

BY JOHN RIBEIRO

VOLUNTEER hackers still play an important role in open-source software development, despite an increase in paid open-source developers hired by large vendors, says **Michael Tiemann**, Red Hat Inc.'s vice president of open-source affairs. Tiemann is also president of the Open Source Initiative (OSI), a nonprofit group that promotes open-source software. At a symposium late last month in Delhi, India, on the effect of intellectual property laws on innovation and progress, he discussed a wide range of issues in an interview with the IDG News Service.

Is the hacker culture disappearing from open-source development as corporate IT shops embrace the concept? The hacker community has always been doing its work from the margins. That does not mean that it wasn't important in the past, and it does not mean it won't be important in the future. But it remains non-mainstream. At the same time, the commercial community has benefited tremendously from rebellious hackers. When a hacker points out that a particular protocol has great security weaknesses, the commercial community who pays attention to that is better for it. The commercial community that attempts to cover it up or deny it puts more people at risk.

Is there something that the OSI can do to make hackers feel more comfortable in the changing open-source environment, where large companies like IBM pay employees for such work? The fact that IBM has a large team doing open-source development is great, and many of the people doing that work for IBM are hackers. They are renegades that just happen to get their paychecks from IBM. Of course there are some very conventional people who are also getting paychecks. I think the reason why open-source has not been corrupted by capital is because capital is almost irrelevant to open-source. The most important thing in software is not financial capital but intellectual capital. The investment by IBM and other companies [in intellectual capital] is a small drop in the bucket.

Once large commercial interests get involved in open-source, isn't there a risk of their creating barriers to entry? One of the great goals of both open-source and free software is to ensure that whatever barriers exist are not sufficient to stop an individual developer from making an individual contribution to the software. That is how I got into this, and I believe that the [GNU General Public License] Version 2 and the GPL Version 3 both provide that kind of protection.

Does forking, or changing open-source code, represent much of a threat to the open-source movement? Forking is a freedom that ensures a robust democracy, when Developer A can basically say, "I no longer trust Developer B, and I am going in my own direction." That freedom to fork is the democratic process being realized. In open-source, people can choose how they want to participate, whether it's the selection of license or the selection of code branches. And we won't lose that freedom.

What is your view on the new GPL Version 3 being promoted by the Free Software Foundation? From a Red Hat perspective, we are participating in the GPL discussion panels. We have representation in both the community and legal panels. As an open-source community member, I would like to see the GPL 3 broadly adopted.

Does the debate over GPL Version 3 reflect a divergence between the Free Software Foundation and the open-source community on how they view software? I think it is possible to live in both worlds. It is definitely true that there are some people who care about only one of those two worlds, but I think that those two worlds can coexist. I think people can be thinking about freedom and be thinking about commerce at the same time.

Ribeiro is a reporter for the IDG News Service.

U.S. Banks Are Slow to Embrace Mobile Commerce

Regulations, costs keep most on the sidelines for now

BY ERIC LAI

Imagine waving your New York subway pass in front of the cash register at a 7-Eleven convenience store to buy a sandwich. Or paying for items you found while surfing the Web on your cell phone by sending a text message.

Such futuristic exercises in the U.S. are already a reality in many Asian and European countries.

For example, Hong Kong residents can use the local subway pass, called an Octopus card, to pay for purchases at fast-food restaurants, convenience stores and vending machines. And Tokyo-based phone operator NTT DoCoMo Inc. offers mobile phones with embedded chips that can serve as either a rechargeable repository of stored money or as a credit card.

In the U.S., meanwhile, there have been only sporadic experiments in the use of next-generation payment schemes. Experts blame the slow U.S. adoption on the tentativeness of banks.

"Banks have given up ownership of some of this space and allowed third parties to proliferate," despite apparent interest from consumers, said Ray Mulhern, president of M-Consulting Group in Charlotte, N.C.

Indeed, technology vendors are beginning to roll out such services to a few U.S. users.

The developers include start-ups such as iBreva Corp., which is piloting a mobile-phone payments service in several small Silicon Valley stores, and larger companies such as PayPal Inc., a division of eBay Inc. In April, it unveiled PayPal Mobile, a phone-to-phone payments service that allows users to pay for merchandise via text messaging. Neither service uses a bank to clear payments.

Waiting for Customers

Some bank executives say they are waiting for customers to become more comfortable with the concept before offering such services.

"You have to understand the comfort level of the average American," said Judd Holroyde, a senior vice president for global product management at Wells Fargo & Co. "He or she is still writing a tremendous amount of checks. I can't imagine a baby boomer being comfortable paying by phone."

Wells Fargo does not yet offer e-payment or mobile payment services.

Mulhern, a former senior executive for payments at Charlotte, N.C.-based Wachovia Corp., noted that banks are also held back by strict government regulations.

"Banks are looked at as keepers of safety and soundness in the payments world," Mulhern observed. "They are much more constrained. As a result, they are not going to move fast."

"Innovation is not a bank's strong suit," added Clayton Giordano, CEO of Palo Alto, Calif.-based iBreva. "They are highly motivated and interested, but they also realize it's a high-stakes game."

Other observers noted that the back-end IT architecture at many banks is siloed and inflexible.

"Most banks still have dedicated, hard-wired payment systems that they bought 10 to 15 years ago," said Matt Ellis, U.S. president for Clear2Pay NV/SA, a Brussels-based provider of back-end payments software to banks.

Some banks, such as Sioux Falls, S.D.-based First Premier Bank, have inched into mobile payment services. It offers a MasterCard-branded prepaid debit card linked to a cell phone payment service that was launched in March by Redwood City, Calif.-based Obopay Inc.

Mobile Society

A June 2006 survey of 800 consumers found that:

- 61% of respondents between 25 and 34 years old want to use mobile phones to pay for merchandise.
- Consumers are twice as likely to carry a mobile phone as cash.
- 50% of respondents want more electronic payment options to avoid carrying cash.
- 50% would send cash to a friend via a mobile phone.
- More than 50% want to download product information on their mobile phones.

SOURCE: VISA U.S.A. INC.

Data Tools Help Schools Meet Federal Mandates

BY HEATHER HAVENSTEIN

As students head back to school, several states are turning to predictive analytic tools to meet the data aggregation and analysis requirements of the federal No Child Left Behind Act. Schools are also hoping the tools can help teachers boost the performance of students in their classrooms.

This summer the Naperville, Ill., school district, located in the suburbs of Chicago, trained the principals in its 21 schools to use SPSS Inc.'s predictive analytic software to evaluate student performance, said Alan Leis, superintendent of the Naperville Community Unit School District 203.

The No Child Left Behind legislation "forces us to focus on individual student data . . . and on large groups by schools," Leis said. "[The analytic software] will allow us to see which students are on a normal growth path and which students are below it . . . and to predict which students are most at risk for not meeting achievement standards."

Congress passed the act in 2001 in an effort to improve the performance of primary and secondary school students.

Planning for Growth

Chicago-based SPSS began working with the Naperville school district a year ago on a project to build a master data warehouse that pulled together the contents of disparate databases containing test scores, demographic data and other information used with the predictive analysis tools, Leis said.

The district's principals and administrators started using the tools late last month to analyze data and build growth plans for schools and the district's 19,000 students. The district expects the software to replace the time-consuming process of manually analyzing data from test score spreadsheets, Leis added.

"Now we can give [the users] a CD with all this data on it so they can do the what-if analysis," he said.

If the system works as expected, Leis said, he hopes to eventually expand use of the software to the district's 1,200 teachers.

Phil Ashworth, coordinator of testing data for the Hamilton County school district in Chattanooga, Tenn., said he has been using SPSS predictive analytic software for several years to analyze test data. A year ago, Ashworth added SPSS's Clementine data mining tool to the mix to provide a graphical representation of test scores from the district's 40,000 students.

The new tool allows the district to establish parameters for analysis and to run a report on and apply those parameters to any of its 80 schools without having to rewrite instructions, he said.

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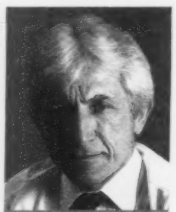
DON TENNANT

Disturbing Defeatism

LET ME ACKNOWLEDGE at the outset that I have never been laid off, so I don't pretend to be able to genuinely identify with the pain of that experience. That said, in last week's issue, Thomas Hoffman's feature "Discarded and Demoralized" — and the reader feedback it generated — struck a chord with me. And it's still reverberating.

What struck me more than anything is the defeatist attitude the experience of being laid off all too often seems to spawn, and the work ethic that attitude tends to yield. In his story, Hoffman recounts the tales of several IT workers who have been laid off, including one who said it changed her professional outlook. "I don't try as hard as I used to," she said. "I used to work 60-to-70-hour weeks and then do work on top of that. Now, I'll do my 50 and not make myself sick."



DON TENNANT is editor in chief of Computerworld. Contact him at don_tennant@computerworld.com.

While it's obvious that no one should work at the expense of her health, that "I don't try as hard as I used to" comment still really jumped out at me. And I was subsequently blown away by the extent to which that attitude was reflected in the reader feedback we've received from this story (*www.computerworld.com/blogs/careerforum*).

"Now I keep my distance from the job and avoid putting my soul into it," noted one reader, who said he had a "near-layoff experience" a couple of years ago but found another position in the same company. "I work with people who'd seen what I (and others who've been laid off) went through [and who] also keep their distance from the job and no longer put [in] 100% effort."

"I won't make the same mistake again by being dedicated," another reader echoed. "It isn't worth it."

A reader who said he's "been laid off a few times" proclaimed that he's now loyal only to himself and those who need him. "I am more mercenary and don't readily associate [with] workmates," he said. Another said he could identify with the "isolationist survival attitude in IT professionals." And from another: "I just need to look out for myself and work until I reach retirement age."

I can't help but contrast this self-pitying, defeatist attitude with some of the feedback we received from other readers who responded far differently to having been laid off. One said the experience taught her to be self-reliant. "These past couple of years I've been learning how to fish so that I can eat for a lifetime," she said. "I have several businesses on the Internet now." Another was similarly motivated. Being laid off twice in less than a year, he said, made him "work that much harder to avoid being a casualty again."

And contrast the "mercenary" comments with those from this reader: "When I was let go, I told the layoff team to do whatever it took to make sure they kept the remaining people," he said, praising the "true team atmosphere" of his department. "The head of HR was so impressed by my concern for my fellow employees that she called the other heads of HR she knew in other companies in the area and lined up eight job interviews for me within the next week. I say this to remind everyone to always remain positive even in the face of what may seem like insurmountable obstacles, because it will benefit you in the end."

No, I don't know what it's like to be laid off. But I do know that if I was hiring for my IT department, I'd go with somebody in the second group every time.

Don Tennant

MARCUS COURTNEY

The Myth of 'Versatilists'

COMPUTERWORLD recently took on the difficult task of forecasting the state of the IT sector in four years ["The IT Profession: 2010," July 17]. It was a thought-provoking package of forward-looking stories — especially the report predicting the skills that tech workers will need to ensure long-term job security and marketability in a changing economy.

Looking into their silicon balls (crystal is so 20th century), industry experts predicted that those with tech knowledge *and* considerable business savvy will carry the day. Such "versatilists," the IT prognosticators claimed, will add business value by navigating a complex tangle of departments, projects and relationships both within and beyond the company that employs them. Success in IT will depend less on, say, development know-how or engineering savvy and more on a multilayered amalgam of business connections, strategic planning and marketing expertise.

MARCUS COURTNEY is president of the Washington Alliance of Technology Workers.

Exciting stuff, almost enough to make you want to run out and enroll in an MBA program — except for two small problems.

The first has to do with what industry leaders such as Microsoft Chairman Bill Gates say they need: *specialized* workers with advanced degrees in computer science and engineering. The second has to do with what those leaders are doing about this perceived need: lobbying Congress and the administration to try to increase the number of foreign technical workers allowed into the U.S. Their argument for raising the cap on H-1B visas is based on a claim that there aren't

enough qualified U.S. workers to go around.

Confused? So am I. That's because we're hearing a classic mixed message. Even as industry moguls bemoan the shortage of technically skilled experts, they are predicting a future where candidates with focused technical expertise are less desirable than multitasking generalists. Trying to conjure an answer to what mix of skills and education is necessary to satisfy the employers of tomorrow would vex even Harry Potter.

Let's dissect the facts.

For more than five years now, job growth in the U.S. IT sector has been significantly weaker than industry leaders like to claim. According to a recent study by the University of Illinois at Chicago's Center for Urban Economic Development, fewer than one quarter (76,300) of U.S. IT jobs that were lost when the tech bubble burst have been recovered over the past three years.

Meanwhile, tens of thousands of jobs have been shipped overseas to low-wage countries. If current trends continue, we can expect more than 3.3 million U.S. industry jobs and $136 billion in wages to move to countries such as India, Russia, China and the Philippines by 2015, according to Forrester Research.

This double whammy — the elimination of skilled positions, coupled with the rapid offshoring of tech jobs at every pay grade — is wreaking havoc on U.S. workers at all levels and leaving technology professionals little incentive to broaden or adapt their skills.

It's little surprise that thousands are now giving up hope, shifting to lower-paying professions and dissuading future generations from even considering careers in the technology field. According to the Computing Research Association, the percentage of college freshmen listing computer science as their probable major fell 70% between 2000 and 2004 — not a good sign regarding where things are headed.

If the U.S. hopes to retain its role as the global driver of the information economy, business leaders and the government need to pay close attention to these trends and start focusing on what can be done to reverse them. We need to make a conscious decision that the U.S. wants to support a vibrant high-tech industry capable of creating — and sustaining — jobs with wages that can support a family. This requires retaining engineering jobs in the U.S. and disabusing ourselves of the idea that a vibrant tech economy will be based on a foundation of versatilists.

Instead, let's consider a new approach based on providing substantive worker training, capping the number of H-1B visas awarded each year and creating meaningful incentives for employers to keep their operations rooted in American soil.

Business leaders must reach out to unemployed or underemployed IT workers and start a major effort to retool the already qualified workers in the industry to meet the required skills of today and the emerging skills of tomorrow. Capping the number of H-1B visas awarded each year at current levels will accomplish two goals: It will encourage employers to look for qualified U.S. workers first, and it will send a signal to students considering degrees in technology that they may have job prospects upon graduation. Finally, Congress and the White House need to review and reform tax policies that provide incentives for multinational corporations to move their workforces overseas.

In the 1990s, IT fueled the U.S. economy, in part by creating thousands of highly skilled living-wage jobs. We need only the chance to regain our footing.

No one knows for sure what the IT market will look like in 2010, and it may very well require versatilists to help move us forward. But without tens of thousands of technically skilled U.S. workers leading the way, none of us may ever find out.

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site:
www.computerworld.com/columns

READERS' LETTERS

Readers Don't See a Workforce Crisis

I HAVE BEEN in IT for 25 years, and I can understand why younger people are not entering the field ["Workforce Crisis," Management, July 3]. All you hear is "outsourcing, outsourcing." Why go into the field when that threat is always hanging over your head? I know profitability is key, but Americans cannot live as cheaply as the people in India.

L. Puckett
Systems analyst, Albuquerque

THERE IS no reason to believe that baby boomer IT workers won't simply be replaced with cheap offshore labor – workers who work long hours for low wages and don't need flexible work arrangements or flexible benefits, or even any of the simple securities afforded Western workers. The "boomer crunch" myth doesn't have any traction outside of technical college recruiting offices.

Keith Tyler
Seattle

WE HAVE heard these same scare tactics for years. If you look at the history of IT worker shortages, you will find that the reasons are always the same. Technology has a boom-and-bust cycle. Our free economy will take care of any worker shortages if companies pay for skills and treat workers fairly.

Bill Stutters
DBA, Denver

THE SO-CALLED lack of IT talent does not exist. There are hundreds of thousands, if not millions, of unemployed or non-IT-employed IT people in the U.S. Because of the rash of outsourcing to other countries, many people with IT skills now work at McDonald's or Wal-Mart or drive taxi cabs. Others can't get a job at all because they are overqualified for everything they apply for.

David Somner
Freelance contract programmer, Hollywood, Fla.

THE REAL reason why computer science and IT enrollment is down at schools, why average retirement among IT workers is at a young 63 and why there is a coming crunch in IT workers is simply this: IT jobs are not enjoyable anymore. With the crash of the dot-coms and the merger of many large companies into even larger companies, IT positions have become little more than bureaucratic form jobs, reporting to some MBA who resents his IT people being paid so much and is eagerly waiting to shovel the work overseas.

Students in college aren't stupid; they know that IT is not where anyone places any value. They'd rather be doing something cool and fun and that has an impact.

Personally, I can't wait to take my three degrees in computer science and retire, or at least go do something I enjoy. Because company IT certainly is not it anymore.

Edward Reasor
Senior architect, Tampa, Fla.

FRANKLY, I can't feel too sorry for U.S. companies suddenly facing the prospect of labor shortages because older workers are leaving the workforce ["'Perfect Storm' on Horizon for U.S. Labor Market," *Computerworld.com*, July 10]. I am one of those older workers, and I and many of my generation would like to work until close to 70 years old. But having been laid off in 2002, partly because employers could find cheaper labor in H-1Bs and younger workers, I have been functionally unemployed for over four years. Even companies where I would have been an excellent fit were not interested and took "a different direction." Age discrimination? Maybe.

Jim Woods
Independent consultant, Glendale Heights, Ill., jlwoods1@hotmail.com

COME ON, guys. A highly skilled profession has been destroyed by allowing millions of unskilled individuals to replace the skilled workers ["New Recruits Still Scarce," Special Report: Careers, July 17]. And you wonder why nobody wants into it?

Thanks to the greed of companies thinking to balance their balance sheets with foreign workers armed with paper degrees but totally devoid of any kind of expertise, everybody is jumping off the U.S. IT ship.

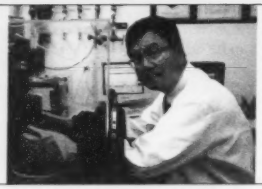
Dario A. Giraldo
Senior technical support engineer, Progress Software, Houston, SrConsultant@technologist.com

THE ARTICLE "New Recruits Still Scarce" cites several initiatives meant to encourage more workers to join the IT field, such as helping students who are currently taking computer science courses complete their studies, or targeting K-12 students with free software, classroom speakers and age-appropriate curricula. But the best way to turn the trend around is to stop the proliferation of H-1Bs and L-1s and to put an end to offshoring. We need to make IT a career worthy of consideration again and bring the pay back to where it was before we fell victim to the "Benedict Arnolds of Industry."

Ken Ward
Business analyst/project manager, DaimlerChrysler, Beverly Hills, Mich., wrk13@dcx.com

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

Pain for Gain
Though the software promises enormous functionality for companies, SAP deployments have become legendarily difficult. *Computerworld* cuts through the myths and provides advice on how to make implementation easier. **PAGE 28**



FUTURE WATCH
Subatomic IT
Previously untapped properties of electrons and nuclear particles may lead to small and power-efficient computer devices, say researchers such as UCLA's Kang Wang. **PAGE 31**

SECURITY MANAGER'S JOURNAL
The Auditors Are Coming, But Not Yet
C.J. Kelly has to move fast to set up an engagement for an audit a year in advance because of her agency's budget cycle. **PAGE 32**

Mastering THE Middleware Muddle

SUCCESSFUL INTEGRATION PROJECTS REQUIRE A STRATEGY TO MANAGE SILOS OF MIDDLEWARE SPREAD ACROSS ORGANIZATIONS

BY SUE HILDRETH

WHAT'S THE MEASURE OF A SUCCESSFUL INTEGRATION PROJECT? For Jamey Harvey, the deputy chief technology officer for the District of Columbia, it was the ability to get a map of all the abandoned cars that needed to be towed in the city.

"A burnt-out car isn't just an eyesore; it's a place where people deal drugs and get murdered," says Harvey.

Until recently, those cars might have stayed on the streets for months. That's because the city's data on abandoned vehicles wasn't all located in the same database, so some of it never showed up on towing lists.

"D.C. has a very feudal system of government, and the 66 agencies that report to the mayor all had their own IT stovepipes, which were not designed to have any kind of interaction between them," says Harvey.

The city's IT department realized it could overcome some of that lack of integration by using Web services. With Sonic Software Corp.'s enterprise service bus product, the IT department created an application called DCstat that merges information from data silos around the city.

Begun as a pilot project in 2004, DCstat enables city employees to see everything from housing-code inspections to crime incidents around the city. It uses information from more than 150 data sources, including the police department, the mayor's call center, the department of transportation and the water and sewer authority. The city also has a much more coherent integration strategy and architecture.

"We now have a well-defined stack and a well-defined product set for each kind of business integration challenge," says Harvey.

For the District of Columbia and other large organizations that have spent years on ad hoc efforts to integrate piles of legacy systems, there's a critical need for

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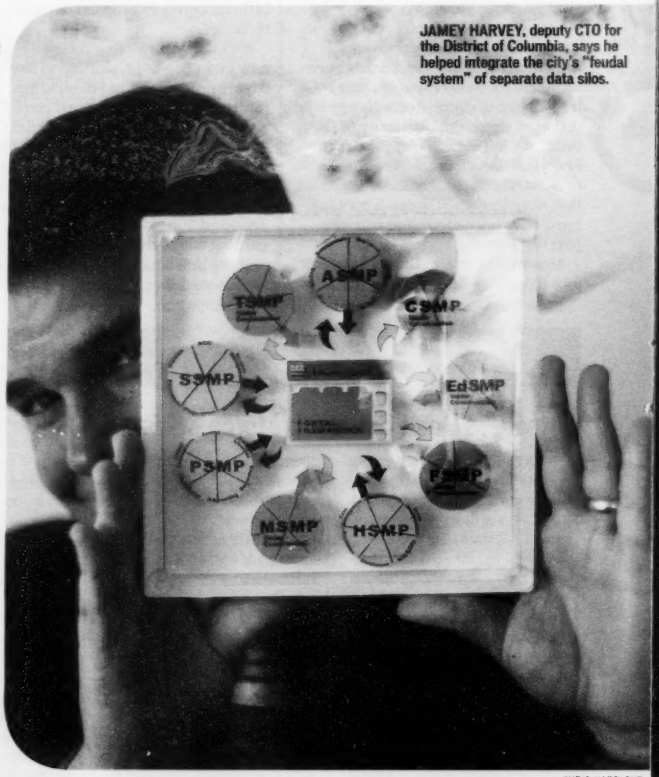

JAMEY HARVEY, deputy CTO for the District of Columbia, says he helped integrate the city's "feudal system" of separate data silos.

CHRIS HARTLOVE

_INFRASTRUCTURE LOG

_DAY 27: So many servers. So many servers crashing. So many servers to reboot. So many security patches to push through. So few Neds.

_We spend our nights and weekends and federal holidays rebooting servers, but it's not enough. Gil is interviewing half the I.T. guys in the state. I'm afraid he wants an army of "Neds." This is out of control.

_DAY 28: Gil's crazy. More I.T. guys aren't the answer. The business is on the road to servermageddon.

_I don't want an army of "me's" to manage my infrastructure. I want control. I want an i.

Common-Sense SOA Approach

A SERVICE-ORIENTED ARCHITECTURE is only as good as the components and design standards that make it. If you want a practical and usable SOA – not just a bucket of services – then you should pay attention to five aspects of SOA development, say integration experts. The following bits of advice were gleaned from Ron Schmelzer, an analyst at ZapThink LLC; Steve Craggs, president of Saint Consulting; and Jamey Harvey, deputy CTO for the District of Columbia.

- **OPEN STANDARDS.** SOAs don't have to be based on open standards, but they won't be as useful in a cross-platform environment if they aren't. Adhering to standards such Web Services Description Language (WSDL), XML and WS-Security ensures that the SOA will be adaptable to all enterprise systems.
- **GRANULARITY.** How you splice application functions into Web services is a key consideration. If too many single-function services are needed to execute a process, the performance slows. Likewise, a bloated service that contains the entire process becomes too specific to use in other applications. The most practical approach is to create a balanced collection of smaller, reusable services for common functions and larger ones for one-off processes.
- **SERVICE CONTRACTS.** WSDL is the standard specification for creating a Web services contract, or a description of things such as the format and endpoint for a service. A well-defined service contract will result in more reusable services.
- **ENTERPRISE SERVICE BUS.** An ESB provides a backbone for publishing services and enabling applications to access them. It also typically has useful features such as adapters for legacy systems, services-orchestration capabilities, security authorization and authentication, data transformation, support for business rules and the ability to monitor for service-level agreements.
- **OTHER INTEGRATION TOOLS.** Not all integration should be done with Web services. EAI (for integrating application transactions), EII (a sort of middleware data query engine) and ETL (for moving data into a data warehouse or database) all have their place. They can also all be linked to an ESB via Web services.

So there's no benefit to trying to turn everything into a Web service. "An SOA itself is only a tool in the belt of the enterprise architect," says Schmelzer. "It's good for dealing with change, for handling heterogeneity. But it's not good for building tightly coupled systems."

– SUE HILDRETH

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a consistent and standardized approach to integration. Multiple middleware products and hand-coded connections drain IT resources with a constant need for maintenance, troubleshooting and configuration updates. Disparate middleware technologies also tend to aggravate the integration problems they were intended to solve, because they create departmental silos of applications that are integrated with one another but not with the rest of the company.

Achieving a more consistent — and manageable — integration architecture is a challenge, particularly for organizations with independent business units and multiple IT shops. It requires constant interdepartmental collaboration and attention to business processes, as well as a thorough inventory of technical requirements.

To help draw a middleware road map, CIOs and integration experts suggest the following six strategies.

1 INVENTORY USER REQUIREMENTS. To determine the technical requirements for integration tools, take an inventory of processes and problems.

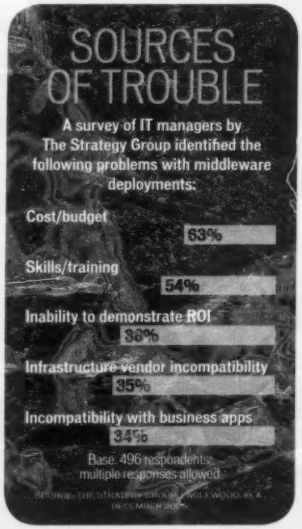
At The Nemours Foundation, one of the nation's largest children's health systems, the IT staff regularly holds joint application development, or JAD, sessions, where application developers and data warehouse staffers meet with end users to discuss business needs and how IT can address them.

Nemours, which owns and operates the Alfred I. duPont Hospital for Children in Wilmington, Del., and children's clinics in Delaware, Florida, Pennsylvania and New Jersey, based its decision to migrate to a new extract, transform and load (ETL) tool on information gathered in those JAD sessions.

"The input we received was a huge component in determining what tool set we needed and what we didn't need," says Edward Todd, data warehouse manager at Nemours, which ultimately selected Business Objects SA's Data Integrator product. The requirements included metadata management and the ability to handle a large volume of data; support for a range of data formats, including the hospital industry's HL7; and data cleansing capabilities.

"Data cleansing is really helpful when working with fields that are human-entered. Do you know how many ways people can misspell *erythromycin*?" quips Todd.

Eric Peebles, lead architect for the city of Chicago's business information systems (BIS) group, suggests sending developers and architects out to listen in on department meetings.



"An architect knows the technology stack and is very good at finding a solution to a set of requirements," says Peebles. "So we invest the architect in the business side. After they understand the politics, the culture and the goals of a particular group, they're able to relate the technology better to business process."

For instance, says Peebles, the Chicago Department of Public Health wanted to be able to track disease trends in the city. So last year, the architects created a geographic information system (GIS) that's accessible via the city's BEA Systems Inc.'s WebLogic portal, by adding HL7 adapters from iWay Software Inc. to connect to area hospitals.

Also last year, the Chicago BIS group decided to adopt a Web services strategy so that agencies could more easily change and add functions to their systems. With the installation of BEA's AquaLogic ESB, the architects hope to empower end users to make many of their own application changes by reorchestrating the Web services and business rules.

2 LOOK FOR THE MOST DYSFUNCTIONAL PROCESSES. "We tackled the customer service data first, because every agency in the city wanted it and they couldn't get to it," says Harvey. "We took the least accessible data in the city and made it the most accessible data in the city. People noticed that."

An integration strategy should focus first on those problem processes that concern the most people or have the greatest effect on the bottom line.

For R.L. Polk & Co., a Southfield, Mich.-based provider of market data and intelligence to the automotive industry, the first — and biggest — Web services integration project was aimed at getting the company's product to market faster.

Polk produces industry information and analysis by taking raw data from 240 external sources — such as auto manufacturers and state motor vehicle departments — and transforming it into data marts and research reports that are purchased by automakers, auto dealers, insurance companies and other market research firms.

Polk used to process that data manually — workers entered data updates, and the updates were processed in batches. To speed up the process and get fresher data to customers, Polk created a Web services-based system using Tibco Software Inc.'s BusinessWorks ESB.

The economic importance of the data integration project made it a good one on which to create a new architecture, says Polk CIO Kevin Vasconi.

Polk is now looking at how it can leverage the ESB to integrate internal legacy systems for additional business benefit. It's an approach that Vasconi urges other CIOs to adopt.

"Look for where the business value is," he advises. "To do it on something that doesn't mean anything to the business — that's just a computer science project."

3 CREATE AN INTEGRATION COMPETENCY CENTER. Integration projects typically cross multiple applications and IT departments, requiring collaboration among different groups. An integration competency center — a team of several different IT and business specialists — can help streamline management of integration projects.

An integration competency center's job is to document the protocols, data formats, interfaces and applications that make up the enterprise architecture. It can then help other departments purchase products that will support that architecture and oversee a standard enterprise vocabulary — or metadata — of all the data formats and their definitions.

Such a team may range from a handful of people to 20 or more when a big project is under way, according to

Continued on page 27

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- Cooper Communities, Inc., Rogers, Arkansas
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- MWABank, Rock Island, Illinois
- Rensselaer Polytechnic Institute, Troy, New York
- United States Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal, New Jersey

Data Visualization, Prediction and Presentation by Leveraging Customized Solutions

- BNSF Railway, Fort Worth, Texas
- Emergency Medical Associates, Livingston, New Jersey
- Health Care Service Corp, Richardson, Texas
- Metro St. Louis, St. Louis, Missouri
- Plano Independent School District, Plano, Texas

Information Retrieval and Reporting by Leveraging Off-the-Shelf Enterprise Software

- CME (Chicago Mercantile Exchange), Chicago, Illinois
- HBOS, plc, Halifax, Great Britain
- Reader's Digest, Pleasantville, New York
- Time/Warner Retail Sales & Marketing (A Time Warner Company), New York, New York
- Whirlpool, Benton Harbor, Michigan

Planning, Designing and Building the BI Infrastructure

- Cisco Systems, San Jose, California
- Georgia Department of Transportation (GDOT), Atlanta, Georgia
- Leeds Hospital, Leeds, Great Britain
- PayPal Inc., San Jose, California
- R. L. Polk & Co., Southfield, Michigan

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Judges will evaluate and rank the finalists in each category according to their substantiated BI-related solution attributes and achievements against a set of criteria as follows in:

- Financial return and measurable payback (returns on investment, assets, resources) through created/protected revenue opportunities or cost savings.
- Strategic importance to the business.
- Substantive customer impact (service, retention, acquisition).
- Positive impact on other business/organization units.
- Addresses system and department interoperability issues and heterogeneous platform integration challenges.
- Provides a strategic advantage to the business/organization while anticipating and accommodating the deployment of future storage solution initiatives.
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- Addresses challenges of data, information and application security, recovery, business continuity, etc.

Thank you to our "Best Practices in Business Intelligence" Judges for 2006:

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- Ron Milton, Computerworld
- M.C. Sankar, TD Ameritrade
- Kevin Vasconi, R.L. Polk & Co.
- Dan Vesset, IDC

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Gartner Inc. analyst Roy Schulte. It may include database administrators, programmers and integration architects, as well as business people who understand the business processes and applications involved in the integration.

Integration-related projects in the District of Columbia are overseen by an enterprise architecture (EA) review board that polices all purchases of middleware and applications that will need to be integrated. All potential products have to conform to the requirements of the EA plan in order to be funded.

"We do a rigorous standardization of products, supported by enterprise licenses to drive the costs down," says Harvey, noting that agencies are encouraged by the cheaper enterprise pricing to use the existing products.

4 USE ONE ARCHITECTURE, MULTIPLE APPROACHES. The District of Columbia chose to go with two integration platforms, one for tight integration and the other for more loosely coupled integration.

For tight integration between related systems, such as applications related to education or crime, the city uses Sun Microsystems Inc.'s SeeBeyond eGate Integrator and eInsight enterprise application integration (EAI) offerings. For looser integration, it employs the ESB to enable agencies to publish specific functions and data as Web services over the bus.

"We use the EAI when we want the systems to get married and take vows, and we use the ESB when we just want them to date," says Harvey.

By 2009, the application integration and middleware software market will grow to $7.1 billion, with a five-year compound annual growth rate of 2.7%. Financial services will be the largest vertical industry, and health care will be the fastest-growing.

Schulte notes that most large organizations will not have, or should not have, just one integration backbone. Practical considerations may well dictate maintaining existing integration schemes, even while deploying a primary architecture for other systems.

"While on paper it may sound good to have the same backbone across all departments and applications, not everyone will or should get there," says Schulte. "A business unit may have a packaged application that comes with its own integration technology. To try to strip that out and plug it into the company's ESB may not be practical."

5 BUILD INCREMENTALLY. A common mistake, say experts, is to assume that you need a full suite of integration applications before beginning to integrate.

"A lot of people think that the way to do integration is pay a load of money to put in a complete infrastructure and start integrating. That's completely the wrong way around," says Steve Craggs, president of Saint Consulting Ltd. in Romsey, England, and vice chairman of the Integration Consortium.

Instead, he says, the first step should be to map out the key systems and business processes that need to be linked and then determine the technical options for doing so. Then build the infrastructure gradually.

"Put in the minimum amount of infrastructure you need — maybe a communications backbone — and incrementally build your integration architecture. It's much less risk and much more financially viable," says Craggs.

6 TEST, PILOT, DEPLOY. Integration projects can touch dozens, maybe even hundreds, of applications — and they can break most of them if not done right. So integration demands more than the usual attention to testing.

ClubCorp Inc., a Dallas-based chain of hotels, resorts and country clubs with dozens of IT systems, bought an enterprise job-scheduling tool only after lots of testing.

The company needed an ETL tool to handle the thousands of tasks flooding its Oracle database each day, says Tracy Baker, ClubCorp's manager of computer operations. "It was a free-for-all. Jobs would queue up and wait on each other," she says.

Four schedulers were installed in a simulated production environment and tested on everything from scalability and support for existing applications to the usability of their adapters.

"We monitored them for two to three weeks, looking at how administration would be, what the ease of use is, how they handled thousands of processes at once — a whole checklist of things," explains Robert Ayala, manager of production support at ClubCorp.

The extensive review led ClubCorp to select AppWorx Corp.'s job scheduling application, which ClubCorp now uses daily to coordinates thousands of processes from 25 different applications.

For many integration projects, a pilot test is also a good idea. It not only provides the technical validation but also offers an opportunity to showcase the benefits.

In the District of Columbia's case, it was during a demonstration of the DCstat pilot that Harvey uncovered all of those untowed cars — some 2,600 that were still on the streets. And what happened to the abandoned cars? Harvey says the city towed all of them the weekend after the DCstat demonstration.

Hildreth is a freelance writer in Waltham, Mass. She can be reached at Sue.Hildreth@comcast.net.

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Transforming IT Management

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Pain FOR Gain

SAP deployments are **notoriously difficult, high-stakes projects**. Here's why that's so, with tips for making them go more smoothly.

BY DREW ROBB

CERTAIN IT initiatives fall into the "bet the company" category. Setting up an ERP system from SAP AG is one such choice. These complex undertakings carry both greater opportunities and greater risks than other enterprise software projects. Done right, an SAP deployment can transform an organization by streamlining operations, cutting costs and opening up new business opportunities. Done wrong, it can become a multiyear nightmare.

For BWXT Y-12 LLC, converting legacy systems to SAP has been a decade-long project. The company — a partnership between nuclear and high-security facilities manager BWX Technologies Inc. in Lynchburg, Va., and engineering giant Bechtel Group Inc. in San Francisco — manages the U.S. Department of Energy's Y-12 National Security Complex outside of Oak Ridge, Tenn. The project began in 1996 as a means of addressing Y2k issues, and parts of the organization are still being moved over to the ERP system. Yet each step along the way has delivered a tangible benefit.

"With our first series of implementations, we replaced 80 to 90 legacy systems and reduced our IT costs for those systems by about $7 million per year," says Charlie Barton, manager of enterprise solutions. "We had an initial investment of $12.5 million, so midway through the second year, we realized a payback."

Not all implementations, however, have gone as smoothly, and SAP has developed a reputation for being difficult to implement. Over the past decade, however, tools and practices have emerged to ease the process and improve the chances of success.

Myths and Realities

Several failed SAP deployments have made the news over the past few years. The Hershey Co. began a $115 million deployment of SAP, Siebel Systems Inc. and Manugistics Group Inc. software in 1997. Two years later, the Hershey, Pa.-based food company experienced massive distribution problems that cut into its profits.

In August 2004, Hewlett-Packard Co. reported that backlogs and lost revenue resulting from an SAP rollout for its enterprise servers cost it $160 million. Whirlpool Corp. and Nike Inc. had similar experiences. What doesn't make the news is that these projects wind up working in the end.

"There is an urban myth out there that a high percentage of SAP systems fail; that simply isn't true," says Jim Shepherd, an analyst at AMR Research Inc. in Boston. "In almost every case, when you encounter

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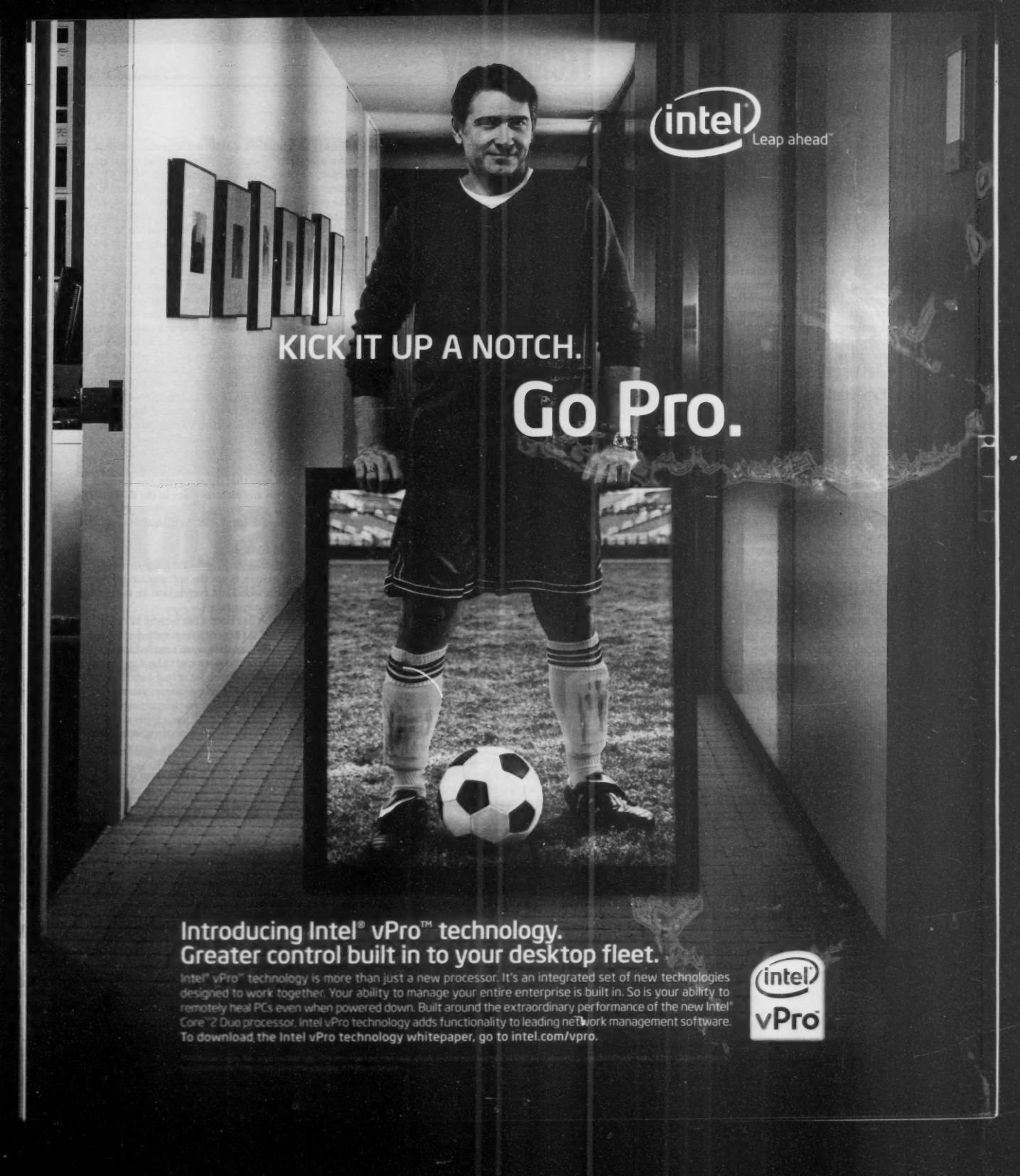
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a story about an SAP customer that had a problem — including Nike, Hershey and HP — if you went back a year later, you would find that they are happily using the system."

Nevertheless, even if the projects do finally return a result, it takes a lot of work to get to that point. "What we have found is that SAP seems to take more investment in customization, more investment in training, more time and cost to get off the ground than a lot of other solutions," says Rebecca Wettemann, an analyst at Nucleus Research Inc. in Wellesley, Mass.

"ERP implementation problems almost never have to do with the software," says Shepherd. "They have to do with poorly run projects, people rushing or not doing adequate testing — but it is extremely rare for it to turn out that the software doesn't work."

Managing Expectations

In the late '90s, SAP began investing in tools to help with the deployment of its systems. Collectively called ASAP, they cover areas such as project management, governance and risk mitigation. SAP continues to refine the tools and comes out with upgrades every year, according to Gene Eichman, a vice president at SAP Consulting. In the past two years, for example, the vendor has released the SAP Safeguarding portfolio of services for implementing or upgrading SAP software. It includes services for high-level planning, feasibility checks, technical integration checks, system configuration verification and the training of staffers so they can take over support.

SAP's own offerings are far from the only services available to smooth the implementation process. "There are a lot more resources on the market today than there were seven or eight years ago," says Kathy Pramik, director of enterprise systems at Brown-Forman Corp., a beverage and consumer products producer and marketer in Louisville, Ky. "You can hire people who have experience with SAP, as well as leverage third parties who have multiple implementations under their belt."

And customers themselves now better understand what such a project entails. "The technology has not gotten easier; what has gotten better is the level of sophistication and the expectations customers have walking into it," says Wettemann. "Companies have started to recognize that SAP is a big undertaking and that they need to devote the internal resources necessary to manage it and ensure it is successful."

Shepherd points out how important it is to maintain discipline when deploying SAP, simply because there is so much that can be done with it. "There is a tendency for people, when faced with this enormous set of functionality, to just get carried away and not limit the scope," he says. "Pretty soon these projects get to be enormous, and they never end. This is more prevalent in an SAP environment than with other ERP systems because of the breadth of their offerings."

Wettemann advises implementing SAP one piece at a time, rather than trying to install several modules at once. "The key thing is not to overbuy," she says. "A lot of companies will buy three solutions and try to implement them at the same time; buying one module at a time is a better strategy."

BWXT, for instance, took a phased approach to SAP, which it runs on Sun Microsystems Inc.'s Solaris operating system with an Oracle database. It began the implementation in April 1997. The first modules, covering financials, materials management, most of human resources and project management, were rolled out in two phases in October 1998 and October 1999. In the ensuing years came travel management, time management, and plant maintenance and quality. The most recent change came in 2005, when the company replaced its Cyborg pension-processing system with SAP.

"We are still missing production planning and the [environment, health and safety] modules, but we have a strategic plan to implement those as well," says Barton. "In the areas where we have SAP, we use it exclusively."

BWXT initially rolled out SAP 3.1, is now on Version 4.7 and plans to upgrade to myERP 2005 in the next calendar year. Although it has implemented SAP one piece at a time, the ability to bring all business processes, both back-end and plant management, into a single system is what led BWXT to select SAP.

"We also looked in detail at Oracle, but what we saw there was fairly modular, with interfaces between the modules, not true data integration," Barton explains. "By buying SAP, we bought a platform for bringing up the operations side of the house, not just the back office."

Steps to a Better Deployment

1. **Get management support before beginning.** An ERP project is primarily a business evolution, rather than an IT activity.
2. **Do it one step at a time.** Don't go for a big-bang approach.
3. **Plan for the future.** Even if you deploy only one module in the beginning, put in the infrastructure that will support the deployment of later modules.
4. **Continue to develop the system.** Once the basics are in place, look for new ways to derive even greater business value.
5. **Leverage others' experience.** A lot has been learned over the past two decades that can improve the ease and success of deploying SAP. Use SAP's internal consulting services, engage a third-party consultant or hire staffers who have done it before, but don't try to do it all on your own.
6. **Have the consultants train internal staff to take over ongoing management of the system.**
7. **Schedule the "go live" dates so they don't interfere with key business activities.**

Brown-Forman took a different approach when it began using SAP about six years ago. "We had a lot of legacy systems in place, some packaged and some homegrown," says Pramik. "We needed to take a look at the next generation of tools to run our business."

Like BWXT, Brown-Forman uses an Oracle database, but it runs its SAP Enterprise Portal on Microsoft Windows Server 2003 and a mix of Sun and HP servers. Rather than just rolling the ERP system out module by module, the company has taken a hybrid approach, rolling out functional groups of modules at one time and staggering the deployment to different facilities. As of this time, about 75% of the locations use SAP. Some of the company's newer acquisitions haven't been brought on board yet, and its luggage subsidiary — Hartmann Luggage Co. — will not be included in the system because it has significantly different business practices than the rest of the firm.

Timing is yet another factor to consider in scheduling a rollout. CA Inc. is in the process of deploying mySAP ERP in four areas: core financials, business intelligence, CRM, and e-procurement and sourcing. Accenture Ltd. is helping it deploy SAP on an IBM mainframe. Fifteen months into the transition, CA CIO Kevin Kern says that the company has learned not to go live with any elements late in the third quarter or at any time during the fourth quarter because of the heavy demands on the financial side.

An Ongoing Investment

The biggest part of deploying SAP, or any other ERP system for that matter, is not the software itself but the data and processes. Data conversion, in particular, can make or break any project.

"Data conversion has been a big technical challenge," says Barton. At his company, systems needed to be cleaned so that bad data wasn't moved into the new systems. Much of the work had to be done manually. "It's easy to accumulate a lot of bad data over the years, particularly with the homegrown systems that have a looser data architecture and less-stringent validity checks," says Barton. "SAP has a fairly rigid data structure and the ability to run a lot of vigorous validity checks, but you have to clean up the data and put it in the right form before bringing it over."

Then there is the matter of the processes themselves. SAP comes with numerous built-in processes that a company can implement. They can all be customized, of course, but customization adds to a project's time and cost. Nucleus Research's Wettemann advises keeping a tight rein on any implementation partners and managing internal expectations. Otherwise, companies can get into "too much consulting and customization and an implementation phase that never ends," she says.

Once the initial goals have been achieved, further features can be added, or the system can be used in new ways. "What we do see is companies leveraging business intelligence tools to get more value out of their investment in SAP or other ERP solutions with a relatively small investment," says Wettemann.

Pramik says that SAP has more capabilities than can be rolled out at one time. "The key thing," she says, "is to look at SAP as an ongoing investment strategy rather than a one-time implementation." ◗

Robb is a Computerworld *contributing writer.*

Advancements in spintronics should result in faster and denser MRAM, says UCLA engineering professor Kang Wang.

Subatomic IT

Previously untapped properties of electrons and nuclear particles may lead to unimaginably small and power-efficient computers.

By Gary Anthes

THE WORK of Jim Allen, a physicist at the University of California, Santa Barbara, is so far removed from everyday experience that he has to explain it by analogy: a tabletop covered with refrigerator magnets. "They all interact with each other and do funny dances," he says.

But these are not ordinary magnets; they are nanoscale "quantum dots," and their dance is far from random. The tiny magnets can be choreographed, or programmed, to solve a logic problem. A tweak to one dot causes its neighbors to do "interesting things," Allen explains.

FUTURE WATCH

The magnets employ a property called electron spin. For decades, computer circuits have been based on the charge, or flow, of electrons. But electrons not only flow; they also spin up or down, offering a new way to store, manipulate and communicate information. Electron spin was discovered in the 1920s, though practical applications have been limited.

But Allen and his colleagues at Stanford University and the UC campuses at Santa Barbara, Los Angeles and Berkeley hope that's about to change. The four schools recently joined with Intel Corp., IBM and four other companies to form the Western Institute of Nanoelectronics, which specializes in spintronics.

Although it encompasses several projects and goals, WIN primarily aims to find an alternative to conventional CMOS semiconductor technology. As CMOS chip features shrink below 65 nanometers, more energy is wasted as heat. Chip makers worry that their approaches have just a few more years to run effectively.

"The major reason for spintronics is clearly anticipation that there are really no solutions below 20 or 30 nanometers, particularly in terms of power dissipation," says Kang Wang, WIN's director and an engineering professor at UCLA. "Today we use electron charge, but we are looking for alternatives."

Spintronic circuits have other attractive properties. The spins can align like tiny bar magnets to create a kind of magnetism that can be retained even when powered off. Such nonvolatile memories have many potential applications in computers and elsewhere.

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Atomic Bus

In parallel with this applied research, some WIN scientists are doing more theoretical work that could have longer-term payoffs. For example, they are trying to find out how another spin phenomenon — that of the atomic nucleus — might be harnessed to make subatomic-scale memory and logic units. One notion is to use the spin of the electron as a "bus" to convey data to the nucleus, where it would be acted on or preserved by nuclear spin.

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– GARY ANTHES

Continued from page 28

a story about an SAP customer that had a problem — including Nike, Hershey and HP — if you went back a year later, you would find that they are happily using the system."

Nevertheless, even if the projects do finally return a result, it takes a lot of work to get to that point. "What we have found is that SAP seems to take more investment in customization, more investment in training, more time and cost to get off the ground than a lot of other solutions," says Rebecca Wettemann, an analyst at Nucleus Research Inc. in Wellesley, Mass.

"ERP implementation problems almost never have to do with the software," says Shepherd. "They have to do with poorly run projects, people rushing or not doing adequate testing — but it is extremely rare for it to turn out that the software doesn't work."

Managing Expectations

In the late '90s, SAP began investing in tools to help with the deployment of its systems. Collectively called ASAP, they cover areas such as project management, governance and risk mitigation. SAP continues to refine the tools and comes out with upgrades every year, according to Gene Eichman, a vice president at SAP Consulting. In the past two years, for example, the vendor has released the SAP Safeguarding portfolio of services for implementing or upgrading SAP software. It includes services for high-level planning, feasibility checks, technical integration checks, system configuration verification and the training of staffers so they can take over support.

SAP's own offerings are far from the only services available to smooth the implementation process. "There are a lot more resources on the market today than there were seven or eight years ago," says Kathy Pramik, director of enterprise systems at Brown-Forman Corp., a beverage and consumer products producer and marketer in Louisville, Ky. "You can hire people who have experience with SAP, as well as leverage third parties who have multiple implementations under their belt."

And customers themselves now better understand what such a project entails. "The technology has not gotten easier; what has gotten better is the level of sophistication and the expectations customers have walking into it," says Wettemann. "Companies have started to recognize that SAP is a big undertaking and that they need to devote the internal resources necessary to manage it and ensure it is successful."

Shepherd points out how important it is to maintain discipline when deploying SAP, simply because there is so much that can be done with it. "There is a tendency for people, when faced with this enormous set of functionality, to just get carried away and not limit the scope," he says. "Pretty soon these projects get to be enormous, and they never end. This is more prevalent in an SAP environment than with other ERP systems because of the breadth of their offerings."

Wettemann advises implementing SAP one piece at a time, rather than trying to install several modules at once."The key thing is not to overbuy," she says. "A lot of companies will buy three solutions and try to implement them at the same time; buying one module at a time is a better strategy."

BWXT, for instance, took a phased approach to SAP, which it runs on Sun Microsystems Inc.'s Solaris operating system with an Oracle database. It began the implementation in April 1997. The first modules, covering financials, materials management, most of human resources and project management, were rolled out in two phases in October 1998 and October 1999. In the ensuing years came travel management, time management, and plant maintenance and quality. The most recent change came in 2005, when the company replaced its Cyborg pension-processing system with SAP.

"We are still missing production planning and the [environment, health and safety] modules, but we have a strategic plan to implement those as well," says Barton. "In the areas where we have SAP, we use it exclusively."

BWXT initially rolled out SAP 3.1, is now on Version 4.7 and plans to upgrade to myERP 2005 in the next calendar year. Although it has implemented SAP one piece at a time, the ability to bring all business processes, both back-end and plant management, into a single system is what led BWXT to select SAP.

"We also looked in detail at Oracle, but what we saw there was fairly modular, with interfaces between the modules, not true data integration," Barton explains. "By buying SAP, we bought a platform for bringing up the operations side of the house, not just the back office."

Steps to a Better Deployment

1. **Get management support before beginning.** An ERP project is primarily a business evolution, rather than an IT activity.
2. **Do it one step at a time.** Don't go for a big-bang approach.
3. **Plan for the future.** Even if you deploy only one module in the beginning, put in the infrastructure that will support the deployment of later modules.
4. **Continue to develop the system.** Once the basics are in place, look for new ways to derive even greater business value.
5. **Leverage others' experience.** A lot has been learned over the past two decades that can improve the ease and success of deploying SAP. Use SAP's internal consulting services, engage a third-party consultant or hire staffers who have done it before, but don't try to do it all on your own.
6. **Have the consultants train internal staff to take over ongoing management of the system.**
7. **Schedule the "go live" dates so they don't interfere with key business activities.**

Brown-Forman took a different approach when it began using SAP about six years ago. "We had a lot of legacy systems in place, some packaged and some homegrown," says Pramik. "We needed to take a look at the next generation of tools to run our business."

Like BWXT, Brown-Forman uses an Oracle database, but it runs its SAP Enterprise Portal on Microsoft Windows Server 2003 and a mix of Sun and HP servers. Rather than just rolling the ERP system out module by module, the company has taken a hybrid approach, rolling out functional groups of modules at one time and staggering the deployment to different facilities. As of this time, about 75% of the locations use SAP. Some of the company's newer acquisitions haven't been brought on board yet, and its luggage subsidiary — Hartmann Luggage Co. — will not be included in the system because it has significantly different business practices than the rest of the firm.

Timing is yet another factor to consider in scheduling a rollout. CA Inc. is in the process of deploying mySAP ERP in four areas: core financials, business intelligence, CRM, and e-procurement and sourcing. Accenture Ltd. is helping it deploy SAP on an IBM mainframe. Fifteen months into the transition, CA CIO Kevin Kern says that the company has learned not to go live with any elements late in the third quarter or at any time during the fourth quarter because of the heavy demands on the financial side.

An Ongoing Investment

The biggest part of deploying SAP, or any other ERP system for that matter, is not the software itself but the data and processes. Data conversion, in particular, can make or break any project.

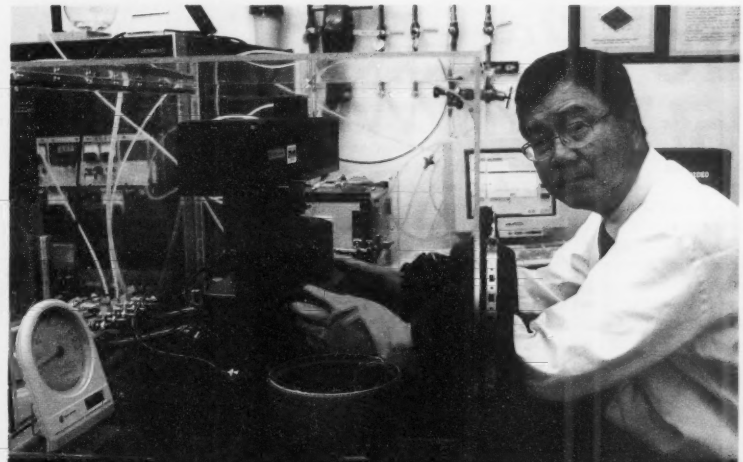
"Data conversion has been a big technical challenge," says Barton. At his company, systems needed to be cleaned so that bad data wasn't moved into the new systems. Much of the work had to be done manually. "It's easy to accumulate a lot of bad data over the years, particularly with the homegrown systems that have a looser data architecture and less-stringent validity checks," says Barton. "SAP has a fairly rigid data structure and the ability to run a lot of vigorous validity checks, but you have to clean up the data and put it in the right form before bringing it over."

Then there is the matter of the processes themselves. SAP comes with numerous built-in processes that a company can implement. They can all be customized, of course, but customization adds to a project's time and cost. Nucleus Research's Wettemann advises keeping a tight rein on any implementation partners and managing internal expectations. Otherwise, companies can get into "too much consulting and customization and an implementation phase that never ends," she says.

Once the initial goals have been achieved, further features can be added, or the system can be used in new ways. "What we do see is companies leveraging business intelligence tools to get more value out of their investment in SAP or other ERP solutions with a relatively small investment," says Wettemann.

Pramik says that SAP has more capabilities than can be rolled out at one time. "The key thing," she says, "is to look at SAP as an ongoing investment strategy rather than a one-time implementation."

Robb is a Computerworld *contributing writer.*



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Subatomic IT

Previously untapped properties of electrons and nuclear particles may lead to unimaginably small and power-efficient computers. By Gary Anthes

THE WORK of Jim Allen, a physicist at the University of California, Santa Barbara, is so far removed from everyday experience that he has to explain it by analogy: a tabletop covered with refrigerator magnets. "They all interact with each other and do funny dances," he says.

But these are not ordinary magnets; they are nanoscale "quantum dots," and their dance is far from random. The tiny magnets can be choreographed, or programmed, to solve a logic problem. A tweak to one dot causes its neighbors to do "interesting things," Allen explains.

The magnets employ a property called electron spin. For decades, computer circuits have been based on the charge, or flow, of electrons. But electrons not only flow; they also spin up or down, offering a new way to store, manipulate and communicate information. Electron spin was discovered in the 1920s, though practical applications have been limited.

FUTURE WATCH

But Allen and his colleagues at Stanford University and the UC campuses at Santa Barbara, Los Angeles and Berkeley hope that's about to change. The four schools recently joined with Intel Corp., IBM and four other companies to form the Western Institute of Nanoelectronics, which specializes in spintronics.

Although it encompasses several projects and goals, WIN primarily aims to find an alternative to conventional CMOS semiconductor technology. As CMOS chip features shrink below 65 nanometers, more energy is wasted as heat. Chip makers worry that their approaches have just a few more years to run effectively.

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GARY ANTHES

The Auditors Are Coming, but Not Yet

Our manager has to move fast to set up an engagement a year in advance because of the agency's budget cycle. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

FOR THE FIRST time in my experience, I have an entire year to prepare for a technology risk assessment. And the assessment will be done by an outside consulting service. I'm a bit excited. From my perspective, this is an opportunity to come out smelling like a rose. Of course, I realize that one or more serious security deficiencies that I'm not aware of could be unearthed, but I feel pretty confident (while remembering that "pride goeth before a fall").

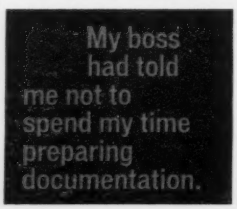
This all occurred suddenly. I thought that a self-assessment was all that was required. But a mandate apparently came down from the Centers for Medicare and Medicaid Services (CMS), stating that all government agencies that operate within the Health Insurance Portability and Accountability Act's guidelines must obtain a risk assessment from an outside consultancy. Besides that, our auditors weren't thrilled with the documentation of our self-assessment.

It's not that we don't know how to document what we do. It's just that sometimes we have to make choices. My boss had told me not to spend my time preparing documentation. He didn't think it was necessary, and I didn't really have the time. In this small agency, I need to spend my days implementing security technologies and tightening access controls, not writing reports. Besides, I can eyeball a firewall configuration and see where changes need to be made, but explaining what I did and why for auditors is another matter.

My boss asked me to get a quote for services "today." That's next to impossible, I said, but I'll knock myself out trying. He had good reason to rush. Budgets were about to be finalized for the coming fiscal year, and we were going to have to squeeze this quote for services into the budget before it went up to the director's office. I gave my boss my estimate of the cost of an assessment and then got to work.

As I reviewed my list of contacts in the information security world, I thought of a guy I had recently met who works for a well-known consulting firm with a good reputation. We had exchanged contact information and talked about meeting to discuss security. Well, why not? I shot him an e-mail, and he replied fast, setting up a conference call with all the powers that be for the following day. I invited my boss to take part, and within 24 hours of receiving my boss's e-mail, we had a statement of work in our hands.

For my boss, that meant he could include a figure for the audit in the budget. For me, having that statement of work piqued my curiosity. How, I wondered, would this consulting firm perform the risk assessment, and what tools would the consultants use? Part of my curiosity arose from having been a full-time security consultant for several years. Having prepared similar documents for clients over the years, I was interested in seeing how a statement of work from a large professional services firm stacked up against what I had done.



Price Matched Budget

I didn't find anything surprising. The language was typical for this sort of thing, broadly describing the tasks that needed to be performed and attaching a price that — least surprising of all — exactly matched our authorized spending limit. The consultants had probed to find out what the budget for the engagement was, and they understood what our spending authorization was to avoid triggering another level of approvals. This statement was saying that they could do the work within that lower ceiling.

But to keep below that ceiling, they had scaled down the scope of the work. Still, the outline of the engagement called for four weeks of work. During the conference call, after they had described their process, I wondered out loud whether they could complete the audit in a few days, instead of four weeks. There was an awkward silence, and I felt bad for having such poor manners as to tell the consultants how quickly they could do their work.

Reviewing the statement now, I found the approach they outlined interesting. They planned to combine standards from the National Institute of Standards and Technology and the International Standards Organization and other security/control frameworks such as Cobit. The outline of services included a general security assessment of the internal networks, a general controls review, an application vulnerability assessment and a look at social engineering techniques.

Internal network assessments are generally done with the aid of scanning tools to blueprint the network and discover network vulnerabilities. It involves penetration testing (via brute-force password cracking) and host vulnerability reporting. Weeding out false positives takes some time.

Reviewing general controls is the most time-consuming part of an audit. The consultants will look at policies and procedures and interview the staff in order to understand what the controls are around, say, file access privileges. They'll do this for several general categories, including administration, information security, network management and operations, computer management and operations, change management, end-user computing, and business continuity and disaster recovery planning. It doesn't look like there will be any curveballs.

So, I will spend the next year preparing for a scheduled audit, but in a way, nothing has changed. The truth is, you are always preparing, because you are always improving infrastructure security.

But it will be a fun year for me as I play "auditor" against the systems I am responsible for. Every time I find something out of whack, we are going to fix it and mentally check it off our preaudit list. Here's hoping for a very successful audit. ▸

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussions in our security blogs: **computerworld.com/blogs/security**.

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**.

SECURITY LOG

Juniper Enhances ScreenOS Product

Juniper Networks Inc. announced an updated version of the ScreenOS operating system that powers its firewall and VPN appliances. ScreenOS 5.4 adds content security capabilities and is available free to existing users of the company's security appliances.

Industries Affected by Network Attacks

Government	23%
Retail	22%
High tech	20%
Finance	16%
Communications	8%
Manufacturing	4%
Education	4%
Health care	2%

SOURCE: TRUSTED STRATEGIES LLC'S CYBERCRIME STUDY, 2006

FaceTime Updates IM Security Tool

FaceTime Communications Inc. announced an upgrade to its enterprise instant messaging security tool. IMAuditor 8.0 works across all sites in a distributed enterprise and can capture and archive file transfers. The product will ship later this month. Pricing starts at $5,000. Version 8 is free for current users with a service contract.

CipherTrust Edge Version 2.0 Debuts

CipherTrust Inc. announced an upgraded version of its Edge appliance that includes new features for blocking annoying or malicious e-mail messages before they enter the network. CipherTrust Edge 2.0, available now and priced starting at $9,995, blocks inbound e-mail containing known viruses or unwanted commercial messages.

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Microsoft

BRIEFS

Senforce Upgrades Security Software

■ Senforce Technologies Inc.'s Endpoint Security Suite 3.2 is now available, featuring new policy controls for removable storage devices to prevent transmission of data. ESS 3.2 allows IT administrators to choose what options to give to users of storage devices that connect via USB, FireWire, Bluetooth or other means, said the Draper, Utah-based vendor. The software starts at $70 per endpoint, plus fees of $35,000 to $45,000 for Senforce's three-to-five-day Quick Start installation and configuration services and one month of phone support.

Intel Launches High-End Processors

■ Intel Corp. upgraded its high-end, dual-core Intel Xeon processors last week with its new 7100 series. There are eight processors in this series, previously code-named Tulsa, and Intel said they offer twice the performance of its Xeon MP processors. The 7100 series includes a low-power, 95-watt version. Pricing ranges from $1,980 for the 7140M at 3.4 GHz to $856 for the 7110N at 2.5 GHz. Most of the major server vendors last week announced plans to ship products with the chips.

Pragma Releases 64-bit Log-in Apps

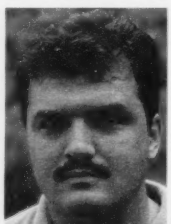
■ Pragma Systems Inc. is offering 64-bit versions of its Pragma FortressSSH Server 5.0, Pragma FortressSSH ClientSuite 5.0 and Pragma TelnetServer 7.0 applications for Windows Vista, 2003, 2000 and XP. They will allow corporate IT managers to control remote access and management of their networks, providing systems administration, application delivery and encrypted file-transfer capabilities, according to the Austin-based vendor. Pricing ranges from $399 to $999 for Pragma FortressSSH Server 5.0 and Pragma TelnetServer 7.0, while the FortressSSH ClientSuite 5.0 is $99.

DOUGLAS SCHWEITZER

Open Season on Unsecured Wi-Fi

THE POPULARITY of wireless Internet connections is growing at an incredible pace. And because so many users fail to secure those connections, the question arises as to whether it is legal (and/or ethical) to connect to a wireless account that hasn't been protected properly. Alternately, we can pose the question like this: If a network doesn't require authorization, then how can there be unauthorized access?

The more users you ask this question, the more opinions you'll find. "I can't yet find a specific case law that would make it totally illegal, but one analogy would be, 'If someone leaves their front door open, is it OK to help yourself to their TV?' " says Ken M. Shaurette, an information systems security specialist at Jefferson Wells International. I'm guessing that most people would answer "absolutely not" to Shaurette's question, but a few others might observe that although the theft might not be right, the owner of the TV is at least partially at fault for making it easy. And then there are those who suggest that using an unprotected wireless network is more like watching the TV than stealing it.



DOUGLAS SCHWEITZER is a freelance writer and Internet security specialist in Nesconset, N.Y. He can be reached at dougreak@juno.com.

"From what I've heard, the actual point of where [unauthorized use] becomes illegal is the actual use of the, in this case wireless, router's processing power," says Shaurette. "So if you can sniff the air without connecting to the router, that's OK. At the time of connection to the router and the router needing to provide you services, it can be construed as trespassing."

There's no denying that, whether you consider unauthorized use legal or not, leaving your wireless network unsecured is a reckless decision. Even if you don't mind the idea of unauthorized users gaining access to your network, you should be aware that any illegal activity they engage in could be traced back to your computer.

Serious consequences can arise from malevolent users piggybacking on wireless connections, carrying out illegal activities and then disappearing. Any number of misdeeds can be carried out. Shaurette cites a potential nightmare scenario: "What if someone sent an e-mail from a free e-mail service threatening the life of the president, using your unsecured wireless?" Or what if piggybackers use your connection to download illicit materials? If the illegal activity is traced to an IP address, law enforcement will confront that address's owner. Imagine trying to explain your innocence (and ignorance) when the evidence clearly tracks back to your IP address.

There's no question that wireless is becoming ubiquitous: More than 10 million homes in the U.S. are equipped with access points or routers that transmit high-speed wireless Internet connections to computers, and on top of that, many commercial businesses, organizations, coffee shops and even entire cities have set up wireless access.

How often wireless connections are secured adequately (or secured at all) is at the heart of the unauthorized usage dilemma. We need to determine what exactly entails permission. For example, when I'm visiting a coffee shop and proceed to open my laptop or fire up my wireless PDA and I find a connection available, am I expected to check for a hot spot sign, or should I run around knocking on doors to ask the connection host's permission? "It is probably worth noting that almost all criminal offenses require some kind of criminal intent," Shaurette says. "A truly accidental connection would likely not be a crime."

Most IT professionals would probably agree that if you come across an unexpected and unsecured wireless hot spot, you should assume it's private unless it's explicitly advertised otherwise — for instance, posted clearly that access is freely available to all users. Says Shaurette, "I think the law that catches it as 'unauthorized access to a computer network' is defined as a third-degree felony [in some jurisdictions], which I don't believe most people realize when they sit in their office, and the office across the street is broadcasting their wireless unsecured and they connect to it."

Many people consider that an unprotected wireless access point is tantamount to an implied invitation to connect. Whether users will be prosecuted will depend upon each case's prevailing state and/or national law. Since new statutes vary considerably, it will be interesting to see how different courts interpret them under various circumstances. ◗

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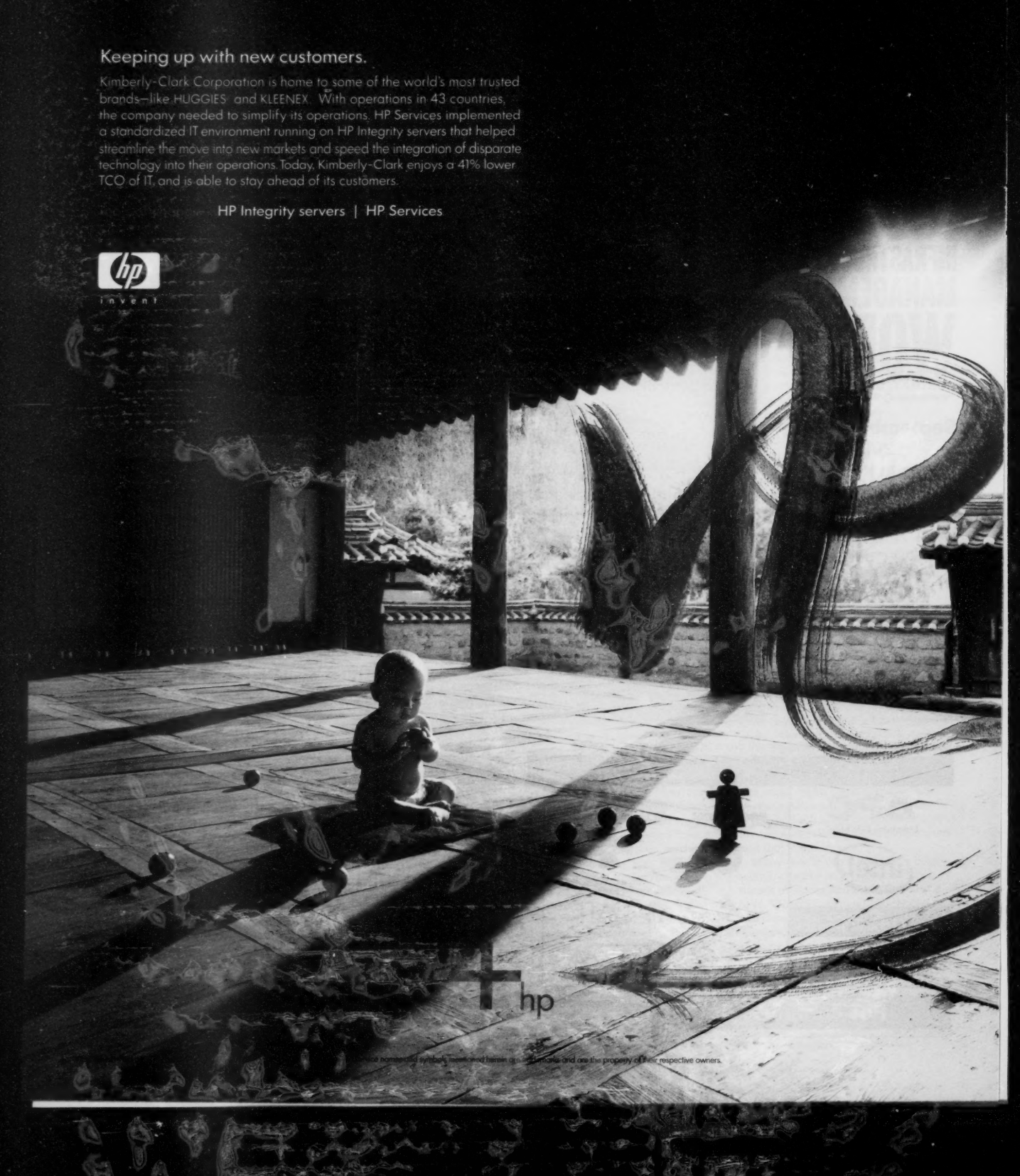

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Sink or Swim?
When a project is foundering, do you save it or let it die? And if it is worth saving, how do you get it back on track? IT leader Pete Gibson and others share their experiences.
PAGE 40

Career Watch
Read the latest on promoting IT among women and minorities, promoting the Midwest among IT professionals, and taking your work on vacation.
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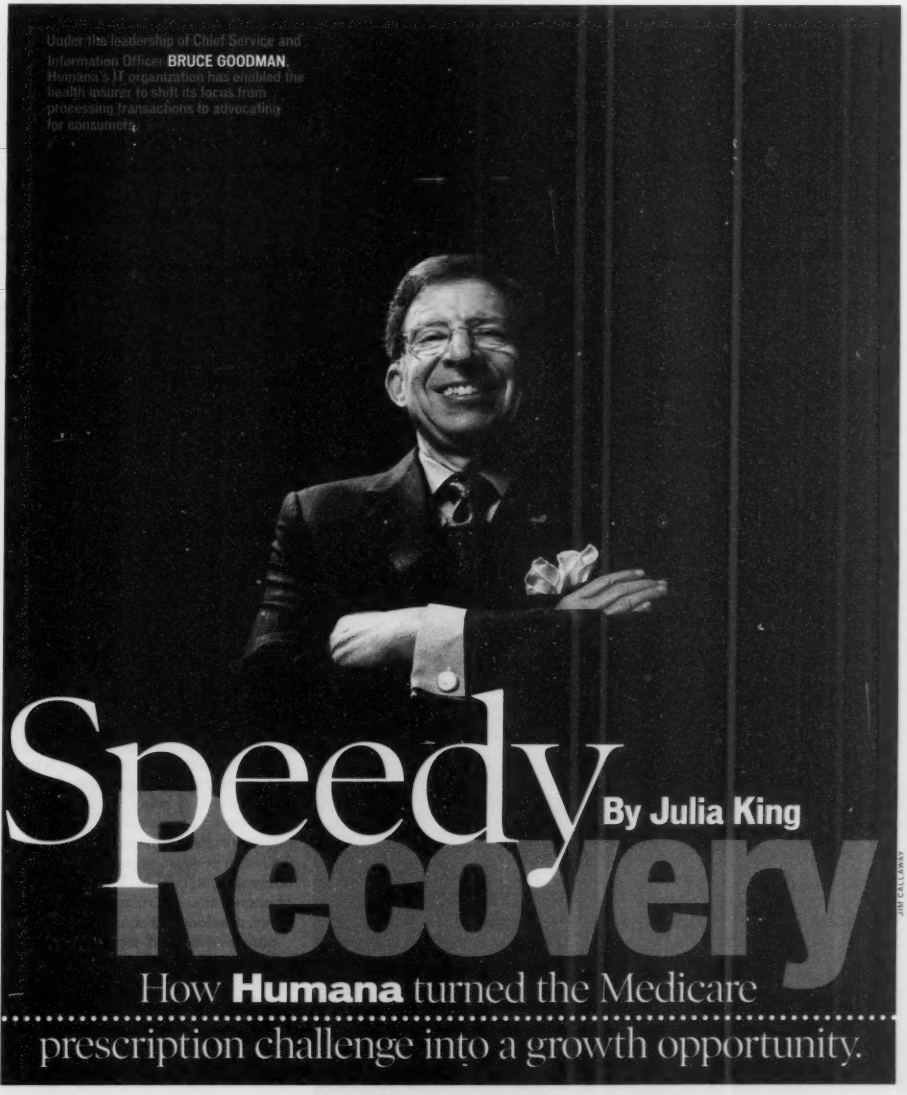
OPINION
Who's In?
Fresh from a road trip, Paul Glen has been thinking about how boundaries and borders can enhance or undermine an organization's performance. **PAGE 44**


Under the leadership of Chief Service and Information Officer BRUCE GOODMAN, Humana's IT organization has enabled the health insurer to shift its focus from processing transactions to advocating for consumers.
JIM CALLAWAY

Speedy Recovery

By Julia King

How **Humana** turned the Medicare prescription challenge into a growth opportunity.

HUMANA INC. is on a mission to do what many U.S. consumers would consider nothing short of a miracle: simplify buying and using health insurance. Its most recent target audience is the millions of Americans eligible for Medicare Part D, the government's revamped prescription drug plan for senior citizens.

Since enrollment began last November, the $13 billion health insurer in Louisville, Ky., has signed up more than 1.7 million new customers for its Medicare Part D prescription plans. Moreover, a sizable chunk of that new business came in electronically via Humana's self-service Web site, a cornerstone of the company's IT-enabled growth strategy known as Perfect Service.

Providing "perfect service" has required a radical shift in role for Humana — from transaction processor to consumer advocate, says Bruce Goodman, chief service and information officer. "One of the key goals is to deliver a total, integrated experience for all stakeholders," he says. That means making information quickly and easily accessible to physicians, hospitals, employers and Humana employees, all of which directly affect a Humana customer's experience. Think of it as an ATM usable by all parties involved in health care.

At the center of this strategy is Humana's IT organization, which in the past few years has made a big shift of its own, from a traditional software development and support group to a highly flexible and ultrafast team of systems integrators. "This was especially important, because in this consumer-oriented world, speed to market is essential," Goodman says.

Now, rather than seeking people with technical skills, Goodman says, Humana's IT group looks to hire people who work well with the business as relationship managers and people who can gauge the value of IT vendors to bring in as strategic partners (see story, next page).

Simplifying Complexity

On the technology side, Humana has built a foundational IT infrastructure and a highly sophisticated set of analytical software tools that let various kinds of users

> **"It's all about looking at different sales channels and equipping them with the right technology so they can have a good experience.**
>
> **Bruce Goodman,** Chief service and information officer, Humana Inc.

tap into a single data repository to retrieve a wide range of customized information. This infrastructure, built on a service-oriented architecture, essentially shields users from the complexities of Humana's massive installation of legacy systems and software while enabling them to gather information they need to make decisions.

Goodman says the planning for Medicare Part D began about nine months before the enrollment period opened in November 2005. Ease of use was a key consideration in creating the Web-based Medicare prescription system, known as SmartSummaryRx. That's because the primary users of these online tools would be senior citizens who Humana assumed would have minimal experience with the Internet and Web-based self-service systems.

"We developed some very complex tools that let a senior or primary caregiver go to the Web site, enter the drugs they're taking and then price out what their total out-of-pocket premium and co-pay expenses would be for 12 months," Goodman explains.

"We've gotten good at developing software wizards that provide guidance around what to choose," he adds.

Channel Strategy

But SmartSummaryRx's users aren't just health care consumers. Claims-processing and billing personnel, doctors, nurses and hospitals can all tap into the system for a customized view of the information they're seeking.

People working in various Humana sales channels can also access SmartSummaryRx to generate pricing information and sign up new customers. These include Humana-employed agents who work in Wal-Mart stores, selling co-branded prescription drug plans; State Farm Insurance and USAA agents who exclusively sell Humana's Medicare plans; independent agents and brokers; and even people using the government's Medicare.gov Web site.

Making the right information easily accessible through various channels is important, according to Humana President and CEO Michael McAlister, who notes that more than 60% of sales of Humana's Medicare Advantage plan have come through its Wal-Mart channel.

Humana made a strategic business decision to include the 200 top-selling prescription drugs in its system and to price those drugs very aggressively, Goodman says. The company also provided its plan and pricing information to the government's Centers for Medicare and Medicaid Services, which during the enrollment period listed information about all insurance companies' new Medicare plans on its Web site.

"If a senior went to Medicare.gov, they'd get a list of which plans are least expensive, and they would see the same thing they would see on Humana's own Web site," Goodman says. "On the government's Web site, Humana continually came out on the top of the list."

This also paid off, he adds, because much of Humana's new Medicare business came in directly from Medicare.gov.

Both Web sites also provided an important lesson: Seniors are far more Web-savvy than Humana had originally reckoned. "Our assumption was that not as many seniors would be self-servicing on the Internet," Goodman says. "But of the seniors who signed up on our Web site, about 60% gave us an e-mail address when we asked for one."

Humana doesn't force Medicare subscribers or customers of any of its plans to use the Internet, however. The company has three telephone service centers that use a different set of analytical tools to tap into the same data warehouse as Web-based customers and external sales agents. Since mid-December, Humana has received an average of 50,000 calls per weekday from consumers seeking one-on-one prescription plan assistance for seniors. Humana agents also conduct seminars for seniors and visit them in their homes, using the same SmartSummaryRx system for guidance.

"Our philosophy was to meet consumers in the space where they are most comfortable," says Terry Overstreet, director of sales operations.

The Right Technology

Reaching out through multiple channels also greatly increased Humana's ability to process customers during the government-set four-month open enrollment period that ended March 15. "In cases where we could use electronic enrollment tools, it greatly enhanced the processing of that business," says Overstreet, adding that using electronic applications instead of paper-based procedures can cut the enrollment processing time by as much as a week.

"It's all about looking at different sales channels and equipping them with the right technology so they can have a good experience," Goodman says.

It's also about anticipating consumer needs and developing the right products and services. After signing up for a Humana prescription plan at Wal-Mart or through a State Farm agent, many customers wanted to confirm that their applications had been approved by Humana. This resulted in a flood of calls to Humana's service centers.

The company's IT group responded by developing a series of proactive alerts, which are delivered to customers via e-mail or by an automated and interactive telephone message. The first simply informed customers of their account status. Later, Humana developed more sophisticated alerts, such as one that informs customers of an equally effective but less expensive medicine than the one they are currently taking.

"Over the last several months, we've sent 3 million proactive alerts," says Goodman. And nine out of 10 customers Humana has surveyed about the alerts have said they are a good idea, he adds.

The alerts have also saved Humana millions of dollars by significantly reducing call volumes, thus cutting call center costs.

Humana's shift to a consumer focus highlights the way the role of an insurer or claims processor is changing to one of health care "infomediary," says Jeff David, director of industry development for the Healthcare Information and Management Systems Society, an industry organization focused on IT in health care.

"Humana, along with other leading payers, is using Web-based self-service systems to help foster what they term 'consumer empowerment' with Part D issues as well as many other areas," David says. "This is part of a definite industry trend of leveraging IT tools to deal with not only prescription drug reimbursement, but also every other area of intersection between health care payer, provider and consumer."

Simple-to-use self-service methods, combined with proactive alerts and services, have been a win for all involved. Says Goodman, "It reduces customers' anxiety, it anticipates what seniors would be interested in, it cuts down on our phone calls, and it has saved us millions of dollars."

Prescription: New Skills

HUMANA'S IT ORGANIZATION still has its share of application developers, networking specialists and IT architects. But new hires are more likely to have standout financial and business skills, says Chief Service and Information Officer Bruce Goodman. "The skill set has certainly changed. We now need a good complement of people who know the business. That means knowing the clinical leverage points for both the top line and the bottom line," he explains.

Excellent communication skills are also more important than ever, Goodman adds. IT never works in a vacuum. Instead, cross-functional teams are the norm at Humana. "In the extended teams are people who deal with the Centers for Medicare and Medicaid Services and people who are experts in regulation, compliance and privacy requirements," he notes.

IT team members need to know how to communicate with them all. For example, when Humana was developing its first set of proactive alerts, the team was diverse. "We had consumer research experts involved. We had hired people out of the packaged-goods industry as we moved to a more consumer orientation. And we did a number of focus groups with seniors," Goodman says. "We were having brainstorming sessions every night."

The IT organization didn't want to just automate existing processes. Rather, it was helping to re-engineer processes to make them work better for consumers. In that kind of work, Goodman says, excellent communication skills and knowledge of the business trump even technical skills.

JULIA KING

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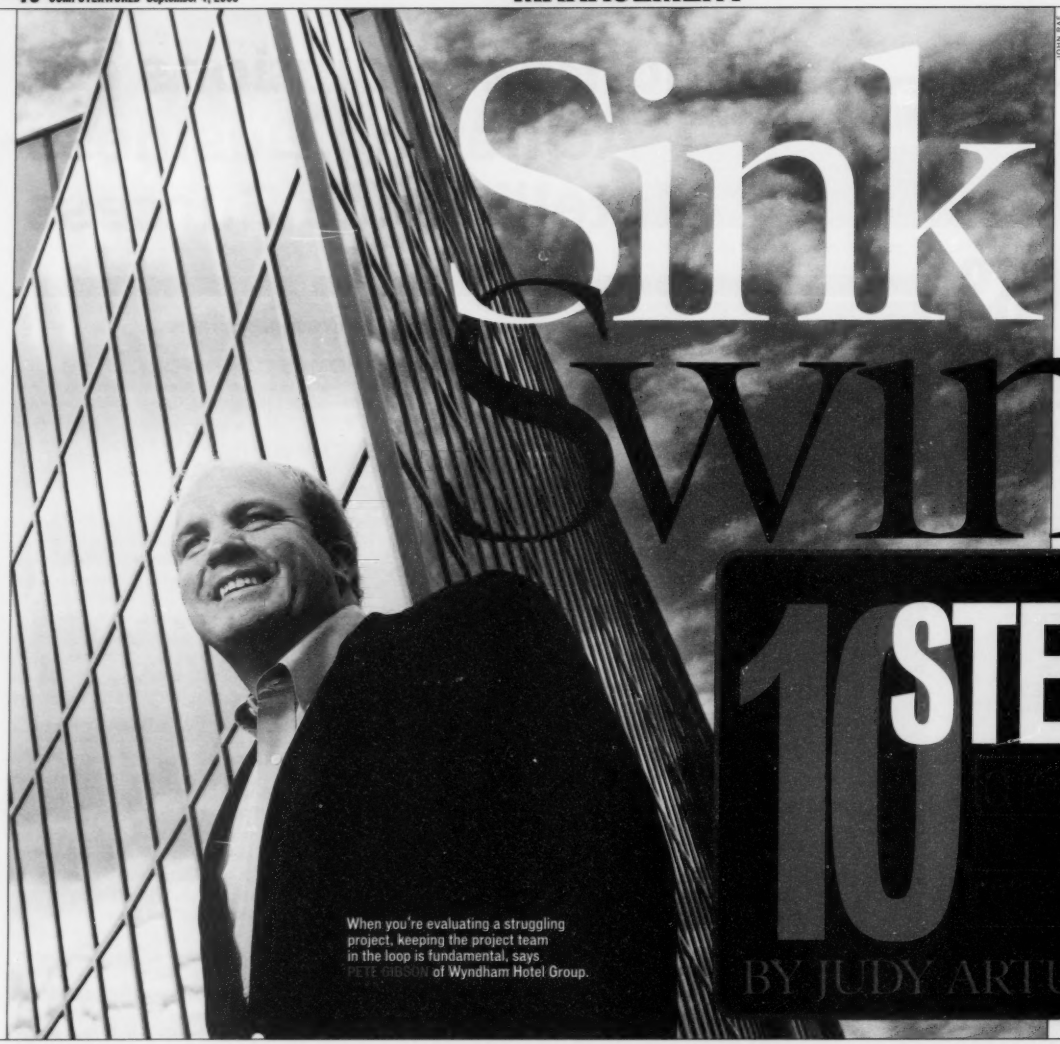
Sink or swim

10 STEPS

BY JUDY ARTUNIAN



When you're evaluating a struggling project, keeping the project team in the loop is fundamental, says PETE GIBSON of Wyndham Hotel Group.

SLIPPING SCHEDULES and budget-busting costs were the primary warning signs that prompted Pete Gibson to halt a project that was under way in 1998 when the U.S. Navy was updating its Tomahawk missile program.

In the first phase of this multiphase software development initiative, various vendors were replacing a proprietary onboard missile-launch control application with a commercial, off-the-shelf system. According to Gibson, then program manager at the U.S. Department of Defense's Naval Surface Warfare Center in Dahlgren, Va., the vendors had run so far over budget that he had to dip into funds that had been allocated for the initiative's second phase. Moreover, the delays caused by the vendors had put the entire project a year behind schedule.

To stop the bleeding, Gibson's team helped the companies solve integration problems by developing a new interface for the launch control application. With the clock ticking, the team's priority was to get it done quickly.

"It was not as robust an interface, and the system was less integrated, but it still met functional specs," Gibson recalls. "It saved us a lot of development hours so that we could complete the second phase of the project and roll out the entire system to the fleet.

"If it wasn't for that solution, some people speculate that the DOD would have canceled the entire project," says Gibson, who is now vice president of IT and systems development at Phoenix-based Wyndham Hotel Group.

When a project is sinking, how do you decide whether it's better to save it or let it die? And if it is worth saving, how do you get it back on track?

The first thing to do is step back. "When a project is in trouble, you need to look at the strategic vital signs. You need a higher-level view," says Gopal Kapur, president of the Center for Project Management in San Ramon, Calif.

Although the project manager might be the first to spot signs of serious trouble, he may not take appropriate action.

"Usually, project managers will believe that they can resolve the problem themselves, or they may even be oblivious to the severity of the problem," says E.M. Bennatan, author of *Catastrophe Disentanglement: Getting Software Projects Back on Track* (Addison-Wesley Professional, 2006) and president of Advanced Project Solutions Inc. in Northfield, Ill.

Denial can also come into play. "You don't want to admit it, so you don't go into the stage of reassessing the project,"

says Dan Demeter, CIO at Los Angeles-based Korn/Ferry International.

It's often up to the project sponsor to decide whether a project is stumbling enough to warrant a reassessment. Once he does, there are many ways to approach this process, but Bennatan suggests 10 steps that pretty much cover the bases. He says that the entire reassessment process shouldn't take more than two weeks to complete for midsize to large projects.

1 Stop the project.

The sponsor, project manager or key stakeholders can call a halt. That stops the damage from continuing and grabs everyone's attention. "You need everyone's total cooperation. If they're scrambling to develop the project in parallel with trying to save it, you're not going to get their attention," Bennatan says.

But some experts discourage this tactic. Stopping the work "forces people to multitask if you take them off the project for two weeks for something else and then bring them back to the original project," says Johanna Rothman, president of Rothman Consulting Group Inc. in Arlington, Mass. She suggests that you reduce wear and tear on the team by evaluating the project before deciding whether to halt the work.

Whatever you do, keep your team informed. "Communicating with your team is fundamental," says Gibson. "The team needs to be made aware of why the project is stopped. If they understand what's going on and they're empowered to make the right decisions, they normally do well. When they're kept in the dark, they get frustrated."

2 Assign a project assessor to determine how bad the trouble is.

Bring in someone who has no stake in the outcome. That could be a consultant or a senior manager from another division of the company. Large projects might require an evaluation team.

Choose someone who is politically sensitive, because he will need to work closely with the project manager without making him feel threatened, even though he may determine that the project manager is part of the problem.

3 Assess project status.

To get a handle on where the project stands, the evaluator should meet with the project's sponsors, stakeholders and team members. He also must review project documents and assess the product under development.

"You have to re-evaluate the strategic importance of the project," Demeter says. "The chances are that it's floundering because it doesn't have the support that carries a project forward. That's probably because its value is not recognized yet, or it's not there."

Projects sometimes start and flop repeatedly because those with insight into the root of the problem stay quiet rather than risk getting caught in a political firestorm. Therefore, it's imperative that the evaluator probe for bad news. "The project auditor should encourage the team to help him identify where the defects are," says Bill Ingersoll, vice president at The Casey Group Inc. in Parsippany, N.J., whose services include IT project management.

4 Evaluate the team.

The evaluator should examine the team's dynamics and skills and the project manager's ability to lead. A common finding, Rothman says, is that the project manager is inexperienced in managing technical projects. Barbara Kunkel recalls a project in which the manager didn't have sufficient technical background. Rather than remove him, Kunkel, who is CIO at law firm Nixon Peabody LLP in Boston, appointed a co-manager who had more experience. "The original manager agreed that was exactly what he needed," she says.

5 Redefine minimum goals

"Most projects go bad because they've been overcomplicated," says Jim Lester, senior vice president of global technology strategy at Aflac Inc. in Columbus, Ga. "You get caught up in 'requirement rush.' You continue to add requirements, and it gets so complicated, it's like a duck-billed platypus. The project team can't figure out what they're building. They can't see it in their mind's eye."

The evaluator works with stakeholders to establish a new set of minimum project requirements. Bennatan suggests dividing the requirements into three groups: essential, very important and "spit and polish." Then "throw out the last two groups," he says.

If stakeholders balk at relinquishing their favorite requirements, say you'll try to revisit those. Tell the customer, "Let's cut back. Let's deliver some of the key value-driven requirements and get this implemented. Then we'll come back and take care of some of these other things later," says Lester.

6 Determine whether the minimum goals can be achieved.

The evaluator should follow a formal project-feasibility process to see if the minimum goals can be met, ensure that the key stakeholders agree to the new goals, develop preliminary time and budget estimates for meeting the goals, re-evaluate whether the project is technically feasible, and gauge the team's confidence. If he uncovers serious roadblocks, he can suggest that the project be killed.

7 Rebuild the team.

If the project is still alive, the evaluator should consider the new requirements against the team's performance, skills and interpersonal dynamics. He should spend time with every team member to get a feel for what goes on behind the scenes. "You can have a [project] manager who writes a great plan, but if he's not communicating it right and providing guidance, he's not managing the project right. The only way you'll find that out is to talk to the team members," says Ingersoll.

If the project manager is deemed competent, he may be asked to lead the new effort, says Rothman. "Typically, once people know they should do something differently and they know what that different thing is, they're very good at going in and doing it," she says.

Ingersoll warns against training project members during the turnaround, though. Put together a team that has the skills you need to get the job done.

Once the team is ready, the project manager needs to do whatever is necessary to revitalize it. "You have to build the relationships again," says Kunkel.

When Kunkel revamped a failed portal project at Nixon Peabody, getting key stakeholders and the project team pumped up again was a major key to the turnaround. "You have to go back and be the cheerleader to get people back on board with you," she says.

8 Perform a risk analysis.

The evaluator, project manager, key team members and stakeholders should list potential problems, estimate the likelihood that each could occur and determine its potential effect. Then they must develop a plan for mitigating each risk. They should focus on serious potential problems, leaving analysis of less-serious risks for after the project starts, Bennatan says.

9 Develop a plan.

Before the project is revived, the evaluator, along with the project manager and project team, needs to create a formal plan for moving forward, says Bennatan. The plan should serve as a vehicle for getting formal approval to start the project rescue, explain in some detail how the project will be cost-effective and provide a foundation for the detailed project plan that will be developed once the rescued project is officially under way.

10 Implement an early-warning system.

"Put in place all the hooks necessary to make sure that the project doesn't slip back into catastrophe mode again," says Bennatan. Collect metrics, periodically review project status, define red flags, and create procedures for corrective action and follow-up.

Artunian is a freelance writer in Newport Beach, Calif. Contact her at jartunian@sbcglobal.net.

TAKING ON WATER

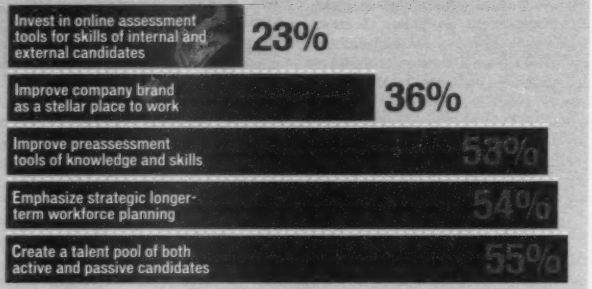
Is your project headed for trouble? Gopal Kapur, president of the Center for Project Management, identifies 10 warning signs.

- Success is expected.
- No conditions for shutdown are defined.
- Senior managers are uninvolved and unaware of the problems.
- Project managers are afraid to communicate bad news.
- There is an emotional commitment to a bad idea.
- Project vital signs are not monitored.
- Money already spent is tainting decision-making.
- Project teams are allowed to drag around comatose projects.
- Cancelled projects are labeled failures.
- Project teams tend to be blamed.

Career Watch

OUT TO GET YOU

What companies say they are doing to find talent in what is perceived as a tight market for IT professionals.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23%
Improve company brand as a stellar place to work
36%
Improve preassessment tools of knowledge and skills
53%
Emphasize strategic longer-term workforce planning
54%
Create a talent pool of both active and passive candidates
55%

SOURCE: ABERDEEN GROUP INC.'S "TALENT ACQUISITION STRATEGIES REPORT," JUNE 2006, WHICH EXAMINED THE TALENT ACQUISITION STRATEGIES OF MORE THAN 100 COMPANIES. MULTIPLE RESPONSES ALLOWED.

Careers IN THE Heartland

When companies in technology hotbeds like Silicon Valley say they are struggling to fill IT positions, how hard must it be in the Rust Belt and the rural Midwest? Pretty tough, but some recruiters have come up with some innovative strategies to attract workers to the heartland.

Paragon IT Professionals focuses its recruiting efforts on the Des Moines and Omaha markets. For those of you who have never ventured beyond the coasts, those are the largest cities in Iowa and Nebraska, respectively. The company's "IT Phone Home" campaign is meant to attract IT professionals from those states to return, touting quality-of-life issues such as housing affordability and stressing that these towns have changed since the IT pros decamped for greener pastures.

In a video on Paragon's Web site, the narrator says with tongue in cheek that IT jobs grow on trees in the Midwest. In addition, Paragon President Craig Jackman notes that in the first six months of this year, the amount of search assignments his company received increased by double-digits.

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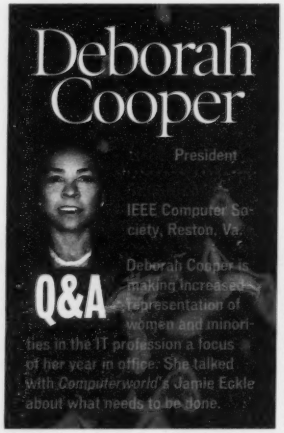
Deborah Cooper
President
IEEE Computer Society, Reston, Va.
Deborah Cooper is making increased representation of women and minorities in the IT profession a focus of her year in office. She talked with Computerworld's Jamie Eckle about what needs to be done.
Q&A

Fewer Americans are pursuing IT careers these days, and the number of women has particularly declined. What can the IEEE Computer Society do to increase the ranks of women and minorities in IT? The Computer Society has a great track record compared with similar organizations for recruiting and elevating women and minorities into senior leadership positions.

I am not the first woman or the first person of color to be elected Computer Society president. But my election has affirmed our tradition of inclusiveness. And I've made it my job to make that spirit of openness and opportunity work for the computing profession by pushing the doors open even wider to careers in technology for more diverse sections of the world's population. To accomplish that vision, I have made diversity the theme for my presidency. By working with the Computer Society's dedicated volunteers and staff, I want to create significant, ongoing mechanisms for involving members from communities underserved by the society.

I have received tremendous support for my outreach initiative from IEEE and Computer Society members and staff, including our 2005 president, Jerry Engel, and our 2007 president, Mike Williams. Our outreach initiative will carry forward next year. We see this becoming an entrenched and vital part of what the Computer Society is about.

Why is it important to do this? I was raised by supportive and competitive parents and an extended circle of family and friends who taught me to confront challenges, refuse to be stereotyped and always give back to the community. So there may be a humanitarian "do good" flavor here, but don't be misled. This is not about charity. The diversity I'm talking about – involving people with diverse thought and experiences – will improve the computing discipline and its competitiveness while also bringing forward new perspectives to shape tomorrow's technology.

The alternative – restricting access as we have too often done in the past – will not only mean a loss of opportunity for individuals but [also] a loss of vital talent to the workforce, which will spell a loss of diverse perspectives and creativity for everyone who depends on IT – and that is pretty much "us."

For my presidential initiative, I see Computer Society volunteers working with their university students and junior staff members to bring the excitement – the "high" that hooked me when I chose a career in computer science – into local high schools where we will engage the best and brightest students as well as the competent but not confident ones who can become the best and brightest with the right mentoring. I see other volunteers working to bring visiting instructors and study-abroad opportunities into African universities, for example, or partnering with leading technology companies to pull the best newcomers into the field no matter their gender or background.

In short, I see Computer Society members and volunteers in all their diversity becoming role models for the next generation in all its diversity, just as I have attempted to be a role model in taking on the society's presidency.

2.3 **Percentage point** drop in share of bachelor's degrees in computer science/computer engineering awarded to women from the 2003-2004 academic year (17%) to 2004-2005 (14.7%).

5.2 **Percentage point** increase in share of bachelor's degrees in computer science/computer engineering awarded to white non-Hispanics from the 2003-2004 academic year (54.4%) to 2004-2005 (59.6%).

SOURCE: COMPUTING RESEARCH ASSOCIATION'S 2004-2005 TAULBEE SURVEY OF PH.D.-GRANTING DEPARTMENTS OF COMPUTER SCIENCE AND COMPUTER ENGINEERING IN THE U.S. AND CANADA

43% Percentage of office workers in 2006 who said they work while on vacation. 41% said their laptops are the tools most responsible for making that easy to do.

23% Percentage of office workers in 1995 who said they worked while on vacation. Back then, cell phones, beepers and fax machines were most often cited.

SOURCE: JUNE 2006 TELEPHONE POLL OF 640 RANDOMLY SELECTED FULL- AND PART-TIME WORKERS CONDUCTED BY OPINION RESEARCH CORP.

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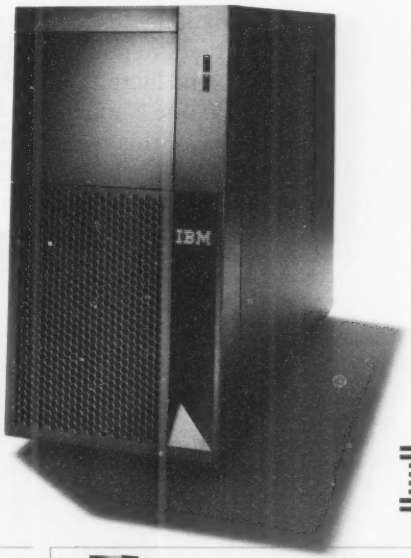

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PAUL GLEN

Who's In?

IN MY CONSULTING WORK, I've often found that my fascination with borders comes in handy. I suppose that I'm not alone in my amusement that one can stand literally straddling a boundary, with one foot in one country and the other in another.

I was reminded of this recently on a cross-country drive here in the U.S. In large swaths of the country, crossing a state border seems like a nonevent. We live up to our name as the *United* States. Other than a sign announcing your arrival in the new state, nothing much changes visibly. The interstate is still the interstate. The topography doesn't shift dramatically. The vegetation remains the same.

PAUL GLEN is director of the Developing Technical Leaders program (*www.developingtechnicalleaders.com*) and author of the award-winning book *Leading Geeks: How to Manage and Lead People Who Deliver Technology* (Jossey-Bass, 2002). Contact him at **info@paulglen.com**.

But then there are some borders that represent stark demarcations. Some things suddenly shift. For example, crossing from Kansas into Oklahoma, endless fields of corn suddenly give way to rangeland dotted with cows. But even there, the interstate is still the interstate. The topography and native vegetation don't change.

I don't know if the discontinuity is due to differences in cultures, tax laws, land use regulations or what, but the Kansas-Oklahoma border is clearly one that matters. The boundary is obvious and immediately apparent.

But even with the nonevent borders, the more subtle differences between states eventually make themselves known. The types of rest stops and restaurants change. The dress and comportment of patrons and staff at the truck stops shift. The reminders of regional differences gradually emerge from the veneer of national franchise uniformity.

Organizational boundaries are a lot like state borders. When you walk through an unfamiliar office, you may not know whether you've just passed from marketing into finance or even software development into networking. The carpet remains the same. The cubicles are identical. The copiers are all of the same vintage and brand.

But in some offices, it's immediately clear when you've left one manager's domain and passed into another's. The boundaries are distinct and unmistakable. You can almost imagine border guards standing behind candy-striped barricades asking for passports and demanding bribes before allowing you to pass. "Who goes there? Friend or foe?"

As a consultant, I frequently find that subtle boundary issues become important in diagnosing and resolving performance problems. At the staff level, organizational borders are usually pretty indisputable. Joe reports to Sally in the SAP support team. Adrian reports to Adam in the project management office. But absent the obvious border guards, management teams often don't really know how they fit together.

When I ask a CIO who should attend the management retreat that we're planning together, the answer often requires a lot of thought. Even at the retreats, when I ask the participants, "Who are the members of the management team?" a surprisingly long discussion usually reveals many different perspectives on the relationships and boundaries among leadership, management, sponsors, customers, users and vendors. Even the citizens don't always know what states they live in.

This may seem like a silly semantic question, but it often proves decisive in making sense of dysfunctional interactions between individuals and groups. Misperceptions and disagreements over boundaries are key sources of role confusion. Managers are usually clear about their roles with respect to their subordinates, but they are rarely so clear about responsibilities and relationships looking up and out from their domains.

To operate effectively, management teams need a common understanding of both the location and the meaning of borders.

The location of boundaries provides information about responsibilities and relationships among managers. Useful conceptual models become available once people know where a boundary lies. For example, do we need an ambassador to the networking group? Do we want to establish an embassy outpost by sending someone to live with the finance department? How does that budget money flow?

The meaning of boundaries offers much more subtle but perhaps even more important information about obligations and relationships among managers. For example, are borders fuzzy interfaces between territories that blend into one another, or do we believe that good fences make good neighbors? Managers interact quite differently depending on the meaning of the frontier.

Making sense of the geopolitics of your office can help you develop useful alliances and avoid energy-sapping border disputes. Everyone can be more productive. Then you can focus on growing corn, and your neighbors on herding cows. ▸

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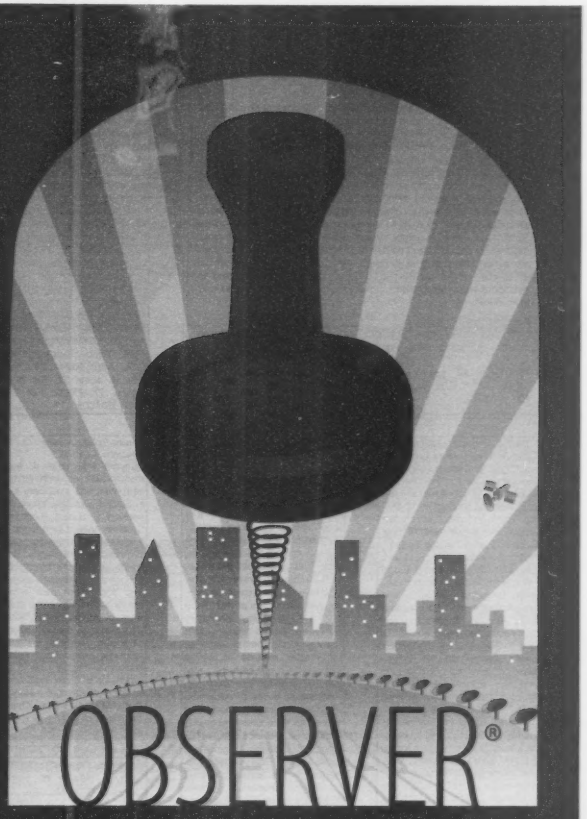

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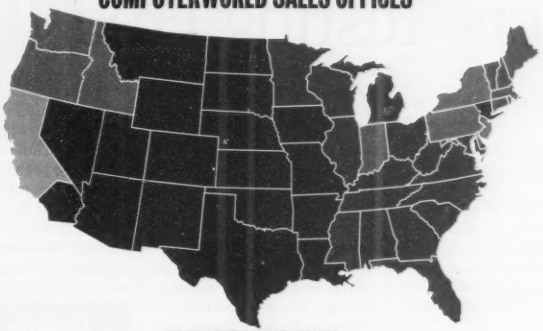

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Midsize Users Testing Free Google Apps

Beta version unveiled last week; high-end version expected this year

BY TODD R. WEISS

WITH LIMITED IT budgets and technical staffs, some small and midsize businesses have started kicking the tires of Google Inc.'s free, Web-based Google Apps for Your Domain desktop application suite. Some early users said last week that the software works well in smaller operations.

Larger companies, on the other hand, may be somewhat wary of buying hosted key applications from the search-engine provider, users and analysts said.

Joe Poole, technical support manager at Boscov's Department Store LLC, a Reading, Pa.-based retailer, said that there's "not much chance" that his company would use the new offering from Google. "If we need inexpensive office software, we use OpenOffice," he said.

"At this point, the large enterprise looks at this and says, 'I've kind of got this covered' " with an Exchange server, instant messaging and other IT software, said Whit Andrews, an analyst at Gartner Inc.

Alejandro Pivaral, CIO at Miami-based 2night Entertainment Corp., said he expects that his company can dump an e-mail server and its associated expenses after signing up its 100 employees for the alpha version of Google's free suite.

"I don't use Outlook anymore," Pivaral said. "I only use Gmail," Google's free hosted e-mail service.

Pivaral said he installed test versions of the new Google offerings earlier this year because they were free, but he has since found additional value.

A beta version of Google's suite of hosted applications was launched last week for small and midsize businesses. The suite will be expanded by year's end with capabilities for larger companies. The corporate versions will carry as yet undisclosed fees, said Matthew Glotzbach, Google's enterprise division products manager. The product suite includes the Gmail software and Google's Calendar, Talk and Page Creator applications.

Student E-mail System

Michael Renzi, director of finance and administration at San Jose City College, said the school began using an alpha version of the suite in February and has already created the school's first e-mail system for its 11,000 students.

"It's providing them with services that we haven't been able to provide before" because of budget restrictions, he said. Renzi said the two-year college had hoped to build such e-mail capabilities over the past several years but hadn't been able to gain funding for the project.

So far, Renzi said, "it's working out great. There are, of course, things that we have to change," including some work processes. But those adjustments are expected and are being made, he added.

Renzi said he's not sure how much money the college has saved by using the hosted Google applications, but "there's no question that it's saved thousands of dollars."

Paul Sculthorpe, a senior Web developer at Rock Kitchen Harris in Leicester, England, said that his company began using Google Apps several weeks ago when its internal mail server died.

Sculthorpe said the Google system was "painless to set up and means we can get on with other things."

The company is looking for Google to improve the Gmail software's spam folder, said Sculthorpe. "We've had a few important e-mails go into the spam folder," he said.

Also, he said, "there has been some [internal] concern over privacy and things. My general answer to that is that I trust Google to take better backups than we ever could."

Google Apps

Applications for small and midsize businesses include the following:

- Gmail e-mail software with up to 2GB of storage per user, search tools and instant messaging capabilities
- Google Talk instant messaging software
- A Google Calendar event organizer that can share data with other users
- The Google Page Creator Web site design tool

NYPD Launches Third Phase Of Data Warehouse Project

BY ERIC LAI

The New York City Police Department is launching a third update of a massive data warehouse that officials hope will one day become a hub for data from dozens of area law enforcement agencies.

Officials said that when the latest update is completed, the warehouse will add real-time alerts and links to several new data sources while boosting capacity from 80GB to about 400GB.

The next update of the IBM DB2-based data warehouse will also add a link for the first time to the department's 12-year-old Computerized Statistics crime-mapping tool, known as CompStat.

City CIO James Onalfo said the city has spent $300 million over the past three years on the technology. "We're in a war, so we need to give our guys in the front lines the best tools possible," he said.

Those tools include the Real-Time Crime Center, a centralized help desk tasked with quickly providing data to the NYPD's 8,000 detectives. The tool has used the data warehouse since both were first unveiled in June 2005.

> "Now we can look at things like a silver gun, or a name on a tattoo, or search for a person's name."
>
> JAMES ONALFO, CIO OF THE NYPD

The first phase of the data warehouse project, overseen by IBM Global Services, included loading records of complaints, arrests, criminal summons, shootings, homicides and other incidents from 2003 and beyond into the warehouse's IBM DB2 database, according to Christine Tyler, an associate partner in the public-sector practice at IBM Global Services.

The second phase of the data warehouse project brought in complaint records dating back to 1995 and arrest data going back to 1990, Tyler said.

"Now we can look at things like a silver gun, or a name on a tattoo, or search for a person's name," Onalfo said.

The data wasn't easy to import, noted Tyler. Many of the NYPD's 55 department databases use older formats such as FoxPro, VSAM or Adabas.

The third phase of the project, which is about to commence, calls for linking the data warehouse to additional data sources from within the department and to sources from outside agencies.

It also marks the first use of Informatica Corp.'s PowerCenter data integration tools, which replace homegrown Cobol-based tools. "We won't initially save time [using the new integration technology], but our investment is reusable, so it will lower future development costs," Tyler said.

The department expects the Informatica tools to help load data from various sources, such as the fingerprint databases run by the state of New York and the FBI, which could reduce the time it takes to match people's fingerprints from as long as three weeks to almost real time, Tyler said.

James Kobielus, an analyst at Washington-based Current Analysis Inc., said that the drive for real-time response parallels the efforts of many Fortune 500 firms. To ensure no latency, however, he recommends that the department consider adding management and monitoring tools.

Onalfo hopes that the data warehouse will someday serve as a central information hub for as many as 30 local government agencies, such as district attorney offices and neighboring police departments.

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FRANK HAYES ■ FRANKLY SPEAKING

Hey, Problem-solver

WHO DOES YOUR BUSINESS TRUST? That's a crucial question for the state of IT work on this Labor Day 2006. Do your users and managers trust you to use technology to solve business problems? Or do they believe that your IT shop can't do the job, and that going outside or offshore is the only way to get real results?

When IT is a trusted problem-solver, the outlook for people who work in corporate IT departments is bright. But if you don't have that problem-solving credibility, you're in trouble — no matter how good things are looking these days for IT.

And things *are* looking pretty good right now. Layoffs are down. Bonuses are up. For the moment, we're needed.

But don't get complacent. After all, the problems out there aren't getting any easier.

Take security, for example — that's an area where the challenges have far outstripped our standard approaches. Laptops and desktop PCs are being lost or stolen at a frightening pace. Thieves break into corporate networks to steal customer information almost routinely.

One solution is to encrypt that data, so even if it's stolen it will be useless to a thief. But how do you handle the crypto keys? Users can't be trusted to keep track of them; they can't remember their own passwords, as every help desk staffer knows too well. Putting an outsourcer in charge of them means an outside company has complete control of your company's lifeblood. The logical place to keep those keys is in your IT shop.

Can you solve that problem? And — more important — do your CEO, your managers and your users believe you can?

Or what about those pesky government regulations such as Sarbanes-Oxley? The heart of Sarb-Ox is tracking and controlling access to financial data. Becoming Sarbanes-Oxley-compliant is just the first step; once that's done, everything going forward has to meet those tighter information-control requirements too.

Farming that work out to experts may make sense, but the ultimate responsibility for obeying the law falls to your top management. Do they trust you to make sure the job was done right, and that financial information remains sound and secure?

If they don't, you're toast. Maybe not today, but soon. Businesses face too many rubber-meets-the-road problems right now to waste time and money on IT shops that can't be trusted to create solutions.

Look, it's a cliché nowadays that tech skills are on the way out in corporate IT, to be supplanted by business skills. But that misses the point. To earn users' and management's trust, you need both tech savvy *and* business savvy.

And those are just the prerequisites. You earn that trust by getting results. And you get results by solving problems — and solving them fast, in ways that directly address exactly what your business needs.

Management theory is fine, but an MBA is no replacement for a clear grasp of what *these* users in *this* department do, and how IT can help them do it better, faster or cheaper.

Technical knowledge is essential — you can't build or buy systems without it, can't evaluate whether outsourcers are doing what they're supposed to, can't gauge whether new technology is ready for prime time. But shuffling the same old bits, crossing the same old wires, won't solve the new problems your business faces.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

That's where your challenge lies. You have the knowledge, the experience and the insider status to solve problems for your enterprise that no one else can — technical problems *and* business problems.

Deliver the goods, prove your value, and you'll build the credibility that will make users and management count on you.

And instead of having to worry about which way the wind is blowing this year — for layoffs, bonuses, outsourcing and offshoring — you'll be the problem-solver your business can trust. ◗

Arrrrrrgggggghhh!

This office is installing emergency lighting – the kind that plugs into a wall outlet and comes on automatically when the power fails. "My boss had the bright idea, 'Let's plug them into one of the UPSs so they'll last longer,' " says a pilot fish on the project. "He had the *duh!* moment a few seconds later, after I walked him through the why and how these lights come on. Then I mentioned the UPS idea to our young Web guru. He also thought it would be a bad idea – 'because it would drain the UPS faster.' "

SHARK TANK

No, No, No!

Rookie programmer pilot fish has gotten some first-rate mentoring, but his cubemate is a different story. "I was working with him to develop a cargo-tracking system," says fish. "My program passed an output file to his program, but his program wouldn't work with my data. After many hours of investigating my code, we found the error – in his program. He said he considered any program that complied as working correctly."

Ch-Ch-Changes

User asks pilot fish to restore what she describes as a "highly critical" document. "She had deleted it several months ago, and it was *soooo* critical that she finally got around to contacting me," fish grumbles. "I retrieved the off-site backup archives and spent an afternoon going through a volume of backups before finally finding a file that seemed to be the one. After I restored it, the user told me the file looked good, but she had changed one sentence in it – could I locate the file with the changes?"

What's Missing?

Logistics supervisor explains to an assistant in great detail how to run business-critical reports while he's on vacation, using software that's installed only on his laptop. And he's emphatic that the reports *must* be run from his PC. "First day of his vacation, the assistant couldn't get it to start – she kept complaining that the screen was just blank," reports an IT pilot fish. "As soon as I walked into his office, I found the problem: He had taken his laptop with him."

Courtesy Call

Small engineering firm changes Internet providers, and after about a year of service, this net admin pilot fish gets a call from the new-ish ISP. "I figured it was a courtesy call," says fish. "They asked me if we had high-speed Internet. I responded, 'Yes, we do.' They asked me who my current provider was and if I'd be interested in changing providers – to which I responded, 'You're our provider, and yes, after this call I am seriously considering changing providers.' "

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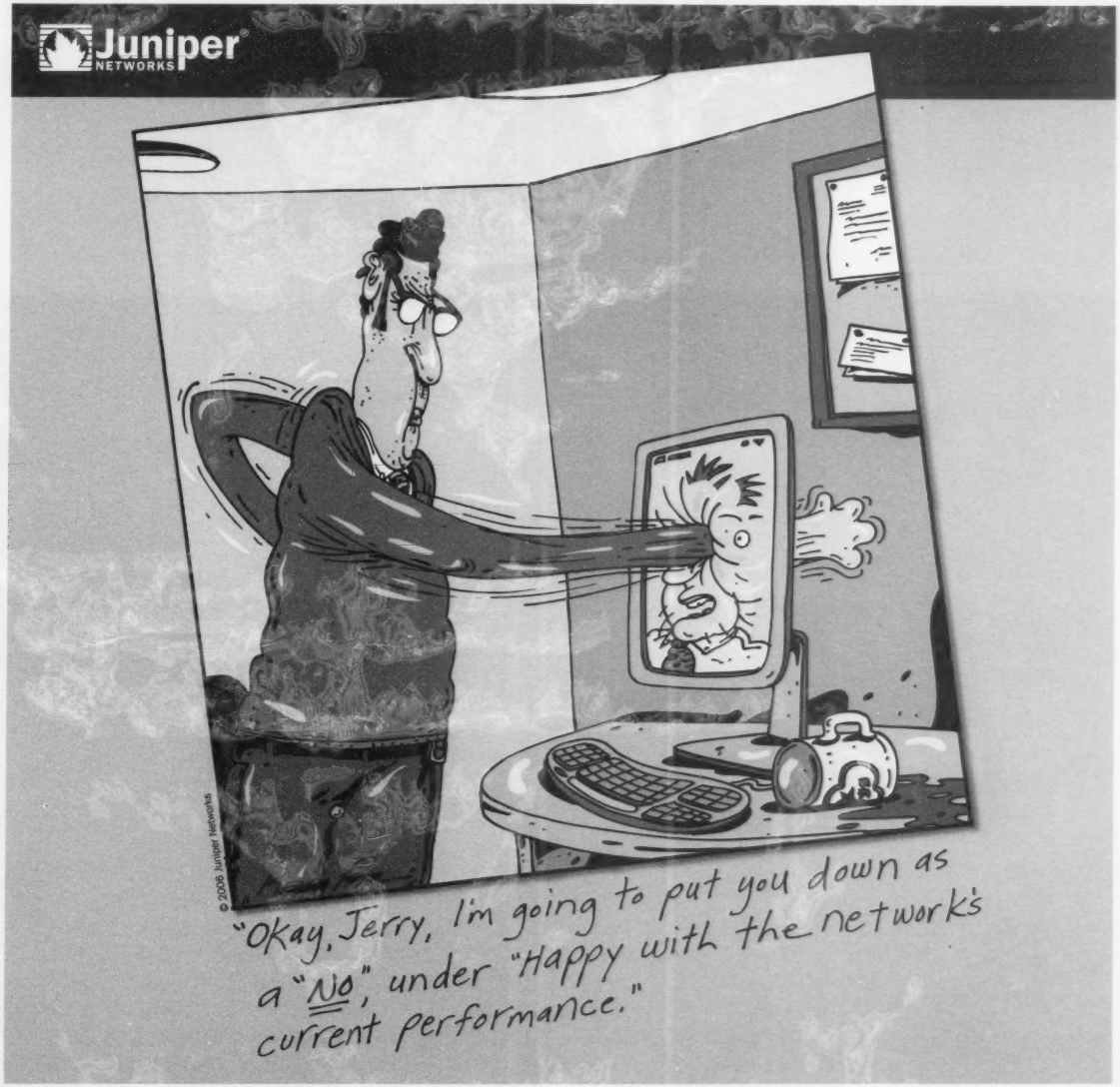
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"Okay, Jerry, I'm going to put you down as a "No", under "Happy with the network's current performance."

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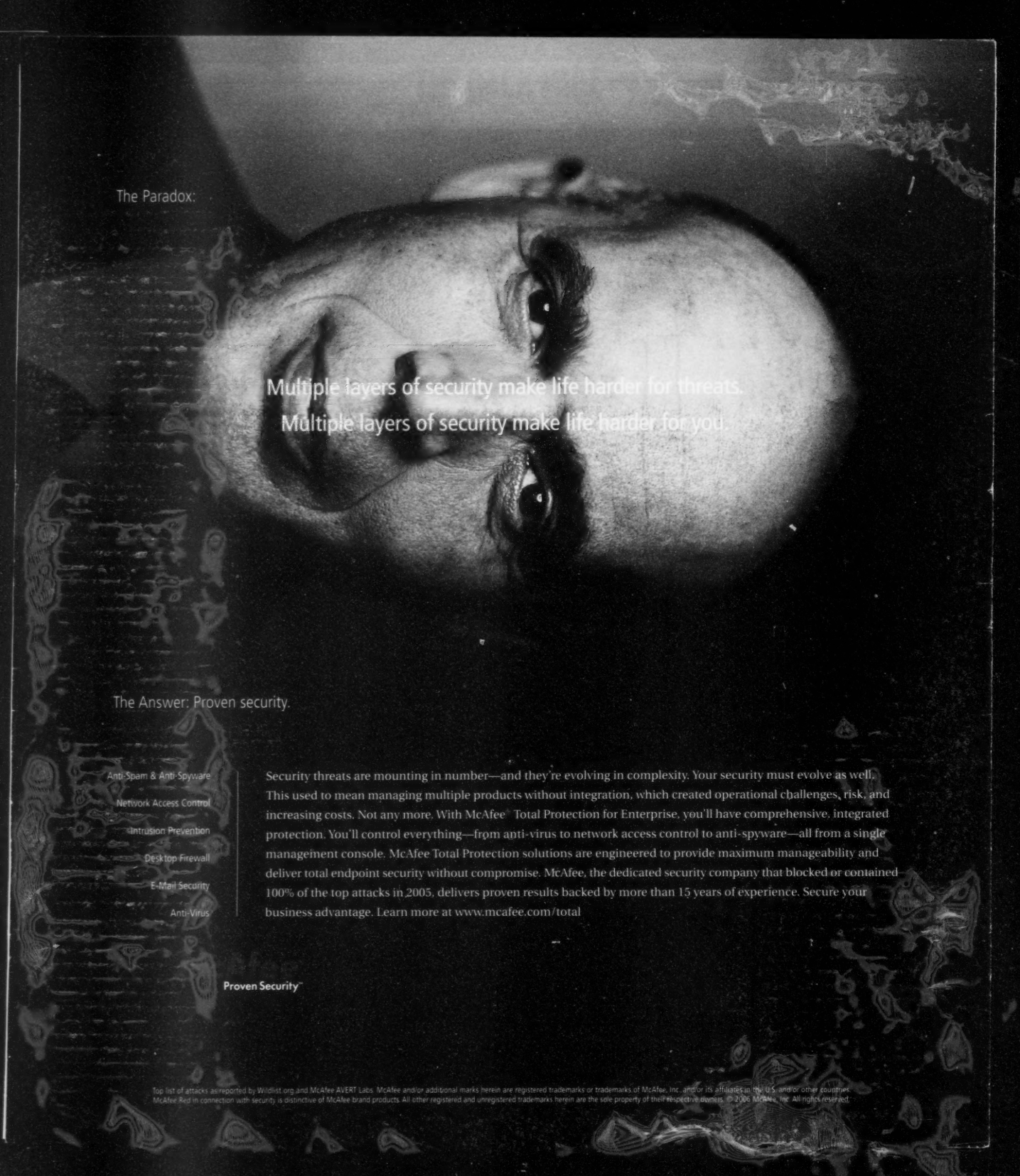
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Multiple layers of security make life harder for threats.
Multiple layers of security make life harder for you.
The Answer: Proven security.
Anti-Spam & Anti-Spyware
Network Access Control
Intrusion Prevention
Desktop Firewall
E-Mail Security
Anti-Virus
Security threats are mounting in number—and they're evolving in complexity. Your security must evolve as well. This used to mean managing multiple products without integration, which created operational challenges, risk, and increasing costs. Not any more. With McAfee® Total Protection for Enterprise, you'll have comprehensive, integrated protection. You'll control everything—from anti-virus to network access control to anti-spyware—all from a single management console. McAfee Total Protection solutions are engineered to provide maximum manageability and deliver total endpoint security without compromise. McAfee, the dedicated security company that blocked or contained 100% of the top attacks in 2005, delivers proven results backed by more than 15 years of experience. Secure your business advantage. Learn more at www.mcafee.com/total
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